

7. **Tank Management and Replacement:** MTA is currently working on a new Tank Management Plan that will be complete within 60 days. MTA is in the process of removing and replacing tanks at its Washington Boulevard and Wabash Avenue facilities.

MTA is in the process of developing a Tank Management Plan (TMP) which will better enable MTA to assess the status and compliance of each UST and AST utilized by MTA. This will guide MTA as it implements a regular inspection program for all USTs and ASTs. It is expected this TMP will be prepared and ready for implementation within 60 days. MTA has also developed a Fuel Management System and Fluid Storage Tank Monitoring and Inventory Control SOP for its bus operations. (See Tab A.)

The UST removal and replacement process at Washington Boulevard is ongoing. A Notice to Proceed (NTP) was issued on June 12, 2006 (see Tab B), and the process is currently in the submittals phase. (See Tab C.) The new fueling systems should be operational before the end of the calendar year.

The UST removal and replacement process at Wabash Avenue is just getting underway. NTP was issued on August 21 to replace the two Wabash USTs and ASTs. This work should be completed before the end of the calendar year.

**SECTION 15945****FUEL MANAGEMENT SYSTEM****PART 1: GENERAL****1.01 RELATED DOCUMENTS:**

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section. In addition, the following sections also apply to this Section:

- A. Section 15190 Fuel Tanks, Piping, Fittings, and Specialties

**1.02 SUMMARY:**

- A. The fuel management control system is comprised of several distinct sections. These sections correspond to the functions and data recorded. Authorization relates to the vehicle identity. Mileage requires several types of input devices. Volumes dispensed include diesel fuel, lube oil and other fluids from pull-downs. Automatic Tank Gauging reposts on fluids delivered and dispensed. In addition, some portions of the control system monitor the pressure boundary integrity of piping systems, sumps, and other secondary containment structures. All of this information shall be collected, stored locally and transmitted to the central server. It will be MTA responsibility to provide network communications between the server and Maximo but contractor has to generate reports in appropriate format.
- B. This Section is divided into the following parts:
  - 1. Authorization: The MTA has a fleet of buses fitted with transponders. The Dispensing equipment should recognize these transponders. Some busses have not been fitted and transponders sometimes are inoperable, but the bus is otherwise available for service. These vehicles can be issued keycards. The Dispensing island should have a card reader to authorize the transactions. The identity of the vehicle should be electronically recorded.
    - a. Any dispenser request will start the lead pump.
    - b. Lead pump designation shall rotate among all pumps
    - c. Motor controller will start alternate or additional pumps to sustain product flow
    - d. Lead pump designation shall latch until tank is at low limit

- e. Pump will stop if associated tank product level is below preset minimum volume
  - f. Pump will automatically stop after running continuously for one hour.
  - g. A key switch will provide test or override feature to start pump
  - h. Pump fail will result in next pump in sequence being activated
2. **MILEAGE:** The transponders on the fleet are capable of passing the vehicle mileage along with the Identity of the vehicle. The Dispensing equipment should recognize these transponders and record their information. Some vehicles, such as Mobility, will have transponders incapable of passing mileage or the bus transponders are inoperable and using key cards. In the event that mileage is unavailable, the Dispensing equipment should prompt for a manual input via a keypad. The mileage of the vehicle should be electronically recorded.
3. **VOLUMES DISPENSED:** Once the transaction is authorized, record all fluid deliveries to that vehicle, including pull-downs such as ATF, 10-30W oil, Anti-freeze, and washer solvent. These volumes should be electronically recorded.
- a. Pull Down Control System
  - b. Manually activate pneumatic pump to dispense Fluid.
  - c. Magnetostrictive probe provides oil level and temperature to TLS-350 or similar device
  - d. Fuel Port provides multiple tank level, tank fill selection, overfill protection, and spill containment
  - e. Manual Inventory Reconciliation
  - f. Provide printed and electronic report of pumped fluids
4. **AUTOMATIC TANK GUAGING:** Provide an automatic Tank Guaging and inventory management system. The system shall include features such as product reconciliation of the diesel fuels and leak detection during times when the dispensing is quiescent for sufficient periods. Generate reports indicating the date and

times when these tests are applied and a pass/fail report. These results should be electronically recorded.

5. **REPORTING:** Each of four sites shall be capable of stand-alone operation and of independent printed reports. Each site should store six months of transactions as a back up. Each site must be capable of electronic reporting to the bus systems central host server. Field hardware shall support TCP/IP protocol.
  - a. Communication between the field devices and local server as well as the central server should use TCP/IP protocol. Devices shall be able to connect to MTA Ethernet network backbone using CAT-6 wiring. Data transfer to the central server should be real time.
  - b. Central sever will be located at MTA central facility. This facility will be connected to each depot via the MTA Wide Area Network (WAN).
  - c. Data transfer should not saturate the WAN links and should not exceed 300 kbps throughput. Data collection should leverage Oracle database.
6. **MTA's RESPONSIBILITY:** It will be MTA's I.T. department's responsibility to connect the Bus systems host server to Maximo's server so that all reports from the Fluid Management System will be available to users of Maximo. . It will be MTA responsibility to provide network communications between the server and Maximo but contractor has to generate reports in appropriate format.

### **1.03 DEFINITIONS:**

- A. AST – Above Ground Storage Tank
- B. BIR - Business Inventory Reconciliation
- C. CSLD - Continuous Statistical Leak Detection
- D. TLS-350 – Veeder Root TLS 350 UST monitoring system
- E. UST – Underground Storage Tank
- F. PLLD – Pressure Line Leak Detection
- G. PMC – Pump Measure Control, diesel fuel dispenser

### **1.04 DIESEL FUEL CONTROL SYSTEM:**

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A.     Dispensing diesel fuel:

1.     Enable: Switch Hook from a dispenser in Bus Wash Building, can be a hook signal from any of the four dispensers.
  - a.     Input Device: Switch Hook at the PMC dispenser
  - b.     Output Device: Hardwired back to the TLS-350 or similar device via a FE Petro hook isolation module.
  - c.     Action: TLS-350 sends signal to FE Petro pump controller.
  - d.     Test/override key switch: One switch per dispenser, located in mechanical room, can be utilized to override the required input from the Veeder Root console (to allow diesel fueling if the Veeder Root console has failed).
2.     Initiate: FE Petro pump controller
  - a.     Input Device: FE Petro pump controller
  - b.     Output Device: Hardwired to associated FE Petro submersible pump at UST.
  - c.     Action: Energize lead pump
3.     Enable: FE Petrol Pump Controller.
  - a.     Input Device: FE Petro pump Controllers
  - b.     Output Device: Hardwired back to FE Petro pump Controllers
  - c.     Action: TLS-350 selects the lead submersible pump based on which UST has the highest level of diesel fuel. The lead pump will be latched until the tank reaches a low level. Once the tank having the lead pump reaches a low level the TLS-350 will select a new lead pump based upon current UST fuel level.
4.     Master / Slave Operation: Fe Petro Pump Controller (as required)
  - a.     Input Device: FE Petro pump controllers
  - b.     Output Device: Hardwired to associated FE Petro submersible pump at UST.
  - c.     Action: When the pump controller senses a current draw from operating lead pump in excess of 30% full load amps,

the pump controller will initiate additional pumps (slave pumps) to sustain product flow. The initiation of these slave pumps will not affect the designation of the lead pump, the pump designated as the lead pump prior to the initiation of the slave pumps will be latched until the product level in the lead pump UST is dropped to the low level. A pump will

5.   Disable:
  - a.    Input Device: FE Petro pump controller
  - b.    Output Device: Hardwired to associated FE Petro submersible pump at UST.
  - c.    Action: Pump controller deenergizes associated pump if no flow is sensed for a period of 1 hour. Each controller operates independently.
6.   Disable:
  - a.    Input Device: Switch Hook at the PMC dispenser
  - b.    Output Device: Hardwired back to the TLS-350
  - c.    Action: TLS-350 sends signal to FE Petro pump controller. Controller de-energizes pump when switch hook opens circuit.
7.   Disable:
  - a.    Input Device: FE Petro pump controller
  - b.    Output Device: Hardwired to associated FE Petro submersible pump at UST.
  - c.    Action: Pump controller de-energizes associated pump on pump failure. The controller will initiate the next pump in the sequence upon pump failure of lead pump.
8.   Disable:
  - a.    Input Device: FE Petro pump controller
  - b.    Output Device: Hardwired to associated FE Petro submersible pump at UST.
  - c.    Action: Pump will not restart after reaching low fuel alarm until UST is refilled. Upon a low level alarm the pump will

turn off after the dispensing process in progress has been terminated, so that the flow to the dispensers is maintained.

9. Disable:
  - a. Input Device: PLLD Sensor
  - b. Output Device: Hardwired back to TLS-350.
  - c. Action: TLS-350 signals ALL pump controllers to stop running after test failure and initiates alarm. All FE Petro pumps controllers de-energize submersible pumps.

B. Filling Diesel Fuel Tanks:

1. No automated controls are provided to allow or disallow the filling of a UST. The TLS 350 senses change in fuel level as a tank is being filled and compensates for this addition during the next inventory reconciliation.
2. Filling of fuel tanks is monitored by the TLS-350. A high-level detection (selectable set point) by the level probe will initiate a notification alarm.

## 1.05 TLS-350 FEATURES

A. Leak Detection Monitoring

1. Leak detection is accomplished at the following locations:
  - a. All secondary containment sumps for all USTs. This is a total of 9 points.
  - b. Diesel tank supply line sump in building.
  - c. Three pull down dispensers
2. Leak detector shall be a non-discriminatory sensor as described in Section 15190 Fuel Tanks, Piping, Fittings, and Specialties.
3. Leak detectors are individually wired back to the TLS-350.
4. Any liquid sensed in any sump will trigger an alarm at the TLS-350 panel. The TLS-350 will indicate which sump has caused the alarm condition. No other functionality is disabled with this alarm.

B. Hydrostatic Tank Monitor

1. A separate hydrostatic test monitor has been provided for each tank. The tank monitor consists of monitoring the fluid level within a small sump area positioned at one end of the tank. If the fluid level moves to an area outside of the monitoring zone, an alarm sounds at the TLS-350 to indicate which tank has caused the alarm condition.

C. Business Inventory Reconciliation

1. Business Inventory Reconciliation (BIR) provides automatic inventory capability. It collects metered transactions, in-tank inventories and deliveries, and then reconciles the totals at the end of each shift, day, or period. You can print reconciliation reports automatically or on demand from the console printer

D. Continuous Statistical Leak Detection (CSLD)

1. CSLD eliminates the need to stop dispensing fuel to run in-tank leak tests by identifying and collecting information during idle times or periods. CSLD provides 24-hour, 0.2 gph leak detection without requiring tank shutdown (0.1 gph Mag probe required for each tank). Information is updated constantly for accurate leak detection. CSLD meets federal, state and local compliance requirements for monthly monitoring. Test results showed a 99% probability of detection and less than a 0.1% chance of false alarm.

E. Minimum required printed reports

1. In-tank Inventory Report
  - a. Items on report: Volume, Ullage, 90% Ullage, water volume and temperature.
2. Inventory Increase Report (last delivery amount)
  - a. Items on report: Increase "start" date/time, increase "start" volume and temperature, increase "end" date/time, increase "end" volume and temperature.
3. Delivery Report
  - a. Items on report: Delivery Time, ticketed volume, gauged volume, fuel temperature, delivery variance and bill of lading number.
4. Fuel Manager Report



- a. Items on report: Tank number, days of fuel remaining and 95% ullage.
- 5. In-tank Leak Test Report (Gross test, Periodic test & annual test)
  - a. Items on report: Tank number, Probe serial number, test start time/date, test length, start volume and leak test results.
- 6. PLLD Test Report and PLLD History report
  - a. Items on report: Tank number, last test time/date, Number of tests passed in the last 24 hours, number of tests past since midnight and leak test results.
- 7. CSLD Test Report
  - a. Items on report: Tank number, Probe serial number, test time/date and test results.
- 8. Liquid Status Report
  - a. Items on report: Tank number, sensor test results.
- 9. Diagnostic Mode Reports
  - a. Alarm History Reports
  - b. Full leak test results
  - c. Fuel management diagnostic reports
  - d. CSLD Monthly report

## **PART 2: PRODUCTS**

**NOT USED**

## **PART 3: EXECUTION**

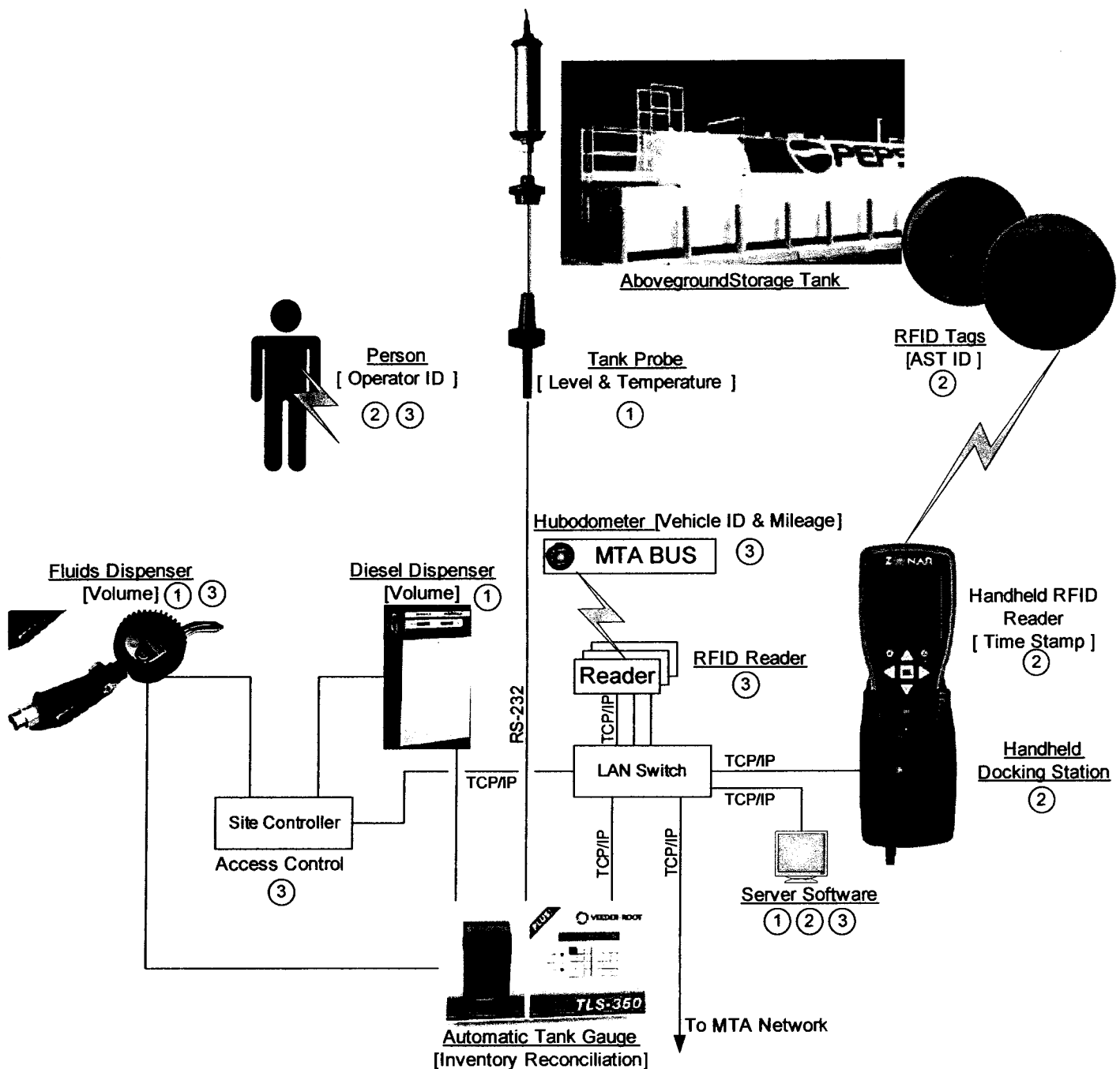
**NOT USED**

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**PART 4: MEASUREMENT AND PAYMENT****4.01 FUEL MANAGEMENT SYSTEM:**

- A. The item Fuel Management System shall be measured for payment.
- B. The item Fuel Management System shall be included in the Lump Sum Price for "*Fuel Management System*" indicated on the Unit Price Schedule.

**END OF SECTION**





**MARYLAND TRANSIT ADMINISTRATION**

**MARYLAND DEPARTMENT OF TRANSPORTATION**

Robert L. Ehrlich, Jr., Governor • Michael S. Steele, Lt. Governor • Robert L. Flanagan, Secretary • Lisa L. Dickerson, Administrator

June 12, 2006

Mr. Theodore E. Bedell III, President  
Total Environmental Concepts, Inc.  
9426 Stewartown Road, Suite 1D  
Montgomery Village, MD 20886

SUBJECT: Contract No. T-1149-0140  
Bush Bus Division Underground Storage Tank Replacement  
**"NOTICE TO PROCEED"**

Dear Mr. Bedell:

Enclosed for your records is one (1) original fully executed contract for the subject project. We are herewith returning your bid guaranty.

You are hereby notified to proceed with the prosecution of the contract in accordance with SGP 8.03 of the Supplementary General Provisions of the contract. The effective date of Notice to Proceed is June 12, 2006.

Mr. Dave Sharik is the Resident Engineer for this contract. Please contact the R.E. at 410-764-9700 to coordinate the start of work.

Sincerely,

A handwritten signature in cursive script that reads "Betty C. Fitch".

Betty C. Fitch, Procurement Officer  
Professional/IT & Construction/Installation Section  
Procurement Division

Enclosures: 1 Original of Contract  
Original Bid Bond

**Preconstruction Meeting  
Agenda  
13 June 2006**

**Contract No:** MTA-T-1149-0140  
**Contract Title:** Bush Bus Division  
Underground Storage Tank Replacement  
**Notice to Proceed:**  
**Time Duration:** 180 Calendar Days  
**Anticipated Completion Date:** 10 December 2006

**JOB DESCRIPTION:**

This contract is for the replacement of existing gasoline, diesel fuel, and lubrication oil underground storage tanks and associated piping, pump, dispensers, power wiring, and controls at the Bush Street Facility. The project shall include all necessary permits, material, labor, tools, equipment, superintendence, technical assistance, mobilization, demobilization, demolition, hauling, testing, approved disposal, and all other considerations required for completion of fully operational, code compliant fuel and oil distribution systems as described in the Contract.  
*Reference SP 01110-1.3*

**1) Designation of Resident Engineer:**

Dave Sharik will be the Resident Engineer. Full-time inspection will be provided, with periodic visits by MTA staff members of both Facilities Engineering and the Construction Departments.

**2) Insurance Requirements:**

Insurance requirements are listed in Contract Specification Sections I, GP-7.14 and Section 01110-1.07.

**3) Affirmative Action Requirements:**

An MBE participation goal of 10% of the Contract Value is required. (handout)  
Monthly Utilization Reports are to be sent monthly to:

Mr. Charles Brown  
Maryland Transit Administration  
6 Saint Paul Street  
MBE/EEO Department , 2<sup>nd</sup> Floor  
Baltimore, Maryland 21202

Phone: (410) 767-8364  
Fax: (410) 333-0899

**4) Contractor's Designation of Key Personnel & Estimated Work Force:**

Designate, in writing, within five (5) days after receiving the Notice to Proceed (NTP), the name, official mailing address and telephone number of the Contractor's representative having complete authority to represent and to act for the Contractor. (handout)

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5) **Correspondence:**

All correspondence should be directed to:

Dave Sharik, Resident Engineer  
Maryland Transit Administration,  
6 Saint Paul Street  
7th Floor Construction Department  
Baltimore, Maryland 21202

with a copy to Dick Lippa, MTA. All correspondence should be sequentially numbered and show the MTA contract number.

6) **Subcontractor Approval:**

The Contractor shall submit for approval to the Resident Engineer regarding the prospective subcontractor's qualifications, values and percent of total contractual obligations. MTA will supply the form to be used (attached). Approval forms are to be sequentially numbered. (handout)

7) **Submittals and/or Shop Drawings:**

Contractor to submit minimally five (5) legible copies to the Resident Engineer with additional copies as needed by the Contractor in accordance with Specification Section 01330. In addition, individual Specification Sections may require specific submittals and/or drawings. All submittals are to be numbered sequentially and show the MTA contract number. Submittals shall have the General Contractors stamp of review.

8) **Progress Schedule:**

Within 21 days after Notice to Proceed submit for approval the Progress Schedule and Project Narrative.

*Reference SP 01300-1.02*

9) **Progress Payments:**

Payments will be prepared monthly and will include a 5% retainage as provided in the Contract Specifications. The Contractor should submit their invoice by the 25th of the month, to allow review by the Resident Engineer. AIA forms (typed or computerized) are acceptable for Contractor invoicing. The Contractor shall submit to the Resident Engineer a breakdown of lump sum items to aid in interim payments per GP-9.03 (a), (1) & (2) and SGP-9.03

10) **Certified Payroll:**

The Contractor shall submit weekly for each week in which any contract work is performed two (2) copies of all payrolls to the Administration within seven (7) days after the regular date (Reference Supplementary General Provisions 10.09 Labor Provisions of the Contract Specifications). In addition, if the Contractor is delinquent in submitting his or any of his subcontractor's payroll records, the Contractor shall be liable to the Administration for liquidated damages, the sum of \$10.00 for each day that the payroll records are late.(Reference SGP-10.10)

**Page Three**

**11) Early Action by Contractor:**

- a) Within ten (10) days of NTP, submit for approval a Source of Supply List of materials to be utilized in the project and the samples required by the Specifications or requested by the Engineer.
- b) Within twenty-one (21) days of NTP, submit for approval the Progress Schedule that will be used as the Contractor's working schedule and shall be used to plan, organize and execute the work. The Contractor is to submit the schedule in accordance with Section 01300 - 1.02 of the specifications. No Work, including mobilization, shall occur prior to the engineering approval of this Progress Schedule.
- c) The Contractor shall submit for approval a cost breakdown of lump sum items, for approval, before partial payment will be made for such items. (Reference GP-9.03, SGP-9.03).
- d) Begin submittal and permit processes.

**12) General Discussion and/or Concerns:**

- a) Parking of Contractor's vehicles and worker vehicles.
- b) Contractor is responsible for locating and protecting all existing utilities.
- c) Weekly Progress Meetings will be held in the Resident Engineer's Office, 4401 Mt. Hope Drive (NW Bus Facility). (Reference Spec. Prov. Section 01310, 1.04 A)
- d) Requests For Information (RFI) are to be used for all clarifications that the Contractor may have. They are to be numbered sequentially and show the MTA contract number. (handout)

cc: File

# Bush Bus Division Underground Storage Tank Replacement

**Contract No. T-1149-0140**  
**Progress Meeting No. 005**  
**21 July 2006**

Notice To Proceed:	12 June 2006	
Contract Duration:	180 Calendar Days	
Anticipated Completion Date:	08 December 2006	
As-Bid Contract Amount:	\$ 1,498,609.00	
Time Elapsed:	Day 40 of 180 CD	(22.22%)
Money Paid To Date:	\$ 0.00	(0.00%)

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**Attendees:**

Dave Sharik	MTA	Bob Childs	MTA	Bob Grabowski	MTA
Deno Yenias	MTA	Bill Wilson	MTA	Dave Modeski	MTA
Harry Johnson	MTA	Clyde Raleigh	MTA		
Drew Miller	G/F	Jeff Gernand	G/F		
Ted Bedell	TEC	Saul Grosser	TEC		

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- 06-13-01    The insurance requirements for the prime contractor have been received and are complete. No submittals have as yet been received for the sub-contractors.  
               Update 06-23 Dave Sharik inquired into the status of the subcontractors insurance requirements. Ted Bedell responded TEC does not have any at this time.  
               Update 06-30 Unchanged.  
               Update 07-07 Unchanged.  
               Update 07-14 Unchanged.  
               Update 07-21 Dave Sharik inquired into the subcontractor's insurance submittals. Saul Grosser hand delivered the documents at this time. Closed.
- 06-13-05    Dave Sharik reviewed the requirement of submittal of subcontractors to the Resident Engineer utilizing the MTA form provided and sequentially numbered.  
               Update 06-23 Unchanged.  
               Update 06-30 Unchanged.  
               Update 07-07 Unchanged.  
               Update 07-21 Upon inquiry by Dave Sharik the subcontractor submittal forms were hand delivered at this time. Closed.
- 06-13-07    Dave Sharik reviewed the requirements of progress schedule submittal for review and approval.  
               Update 06-23 At this time a draft of the project schedule was hand delivered for submittal and approval.



- Update 06-30 Dave Sharik reported the schedule has been forwarded to MTA for review and approval.
- Update 07-30 Dave Sharik reported the schedule has been reviewed and returned by the MTA with a list of corrections needed. (Revised and Resubmit). The schedule was hand delivered to TEC at this time.
- Update 07-14 Saul Grosser hand delivered a revised schedule at this time for submittal , the schedule will be forwarded to MTA for review.
- Update 07-21 Dave Sharik reported on a deficiency in the schedule, incorrect end date, and reviewed the construction of the schedule.**

06-13-11 Dave then opened for discussion to all present for any concerns or questions. Discussions held and various concerns addressed:

- a. Location of contractor's field trailer, parking, access, etc.
  - Update 06-23 S-G is to remove their trailer from site. TEC is to finalize location of their trailer.
  - Update 06-30 Dave Sharik reported he has contacted SG to expedite removal of their trailer from the site to allow TEC an area to place their trailer for the project.
  - Update 07-07 Dave Sharik reported he has contacted SG to move their trailer rapidly or the MTA will have it removed at cost to SG.
  - Update 07-14 Dave Sharik reported S-G has been directed to remove their equipment trailer from the site no later than 18<sup>th</sup>. July. If it is still on site it will be removed by the MTA on the 19<sup>th</sup>. July.
  - Update 07-21 Dave Sharik reported S-G has removed their equipment trailer, and the area is temporarily being utilized to store buses which will be moved to provide space for TEC's trailer. Closed.**
- b. Clyde Raleigh reviewed and discussed the QA/QC requirements per contract specification 1450.
  - Update 06-23 At this time a draft copy of QC plan was hand delivered. (Returned for incomplete submittal)
  - Update 06-30 Dave Sharik reported the MTA is reviewing a copy of the QA/QC plan and will advise of any changes or additions to be made.
  - Update 07-07 Dave Sharik reported TEC's QA/QC plan has been returned with a list of corrections to be made for approval. The plan was hand delivered at this time. (Revise & Resubmit.)
  - Update 07-14 Unchanged.
  - Update 07-21 Upon inquiry the revised QA/QC plan was hand delivered for submittal and review.**
- c. Harry Johnson discussed the temporary tanks in-place currently and the gallon requirements of the facility and the need to expedite the upgrade to the capacity. Also, the oil lube permit needs to be amended per Harry.
  - Update 06-23 TEC stated it would be three to four weeks for the additional temporary tank to be supplied as it is in used on another project. Harry Johnson has not yet obtained the amended oil lube permit, needs to expedite this action.

Update 06-30 Unchanged.

Update 07-07 Upon discussion it was discovered the MTA Safety section is to have the oil lube permit amended not Facilities Engineering as earlier reported. Bernadette Bridges is expediting this permit and will forward copies when received. At this time Ted Bedell hand delivered a RFI regarding clarification on supplying the additional temporary diesel storage tank. It was discussed and decided TEC should continue to expedite delivery of the additional tank, which could be on site between 14<sup>th</sup> to 21<sup>st</sup>. July, in the event Wayne Jones MTA Engineering is not able to acquire the additional needed tank in the interim. MTA is to keep TEC apprised of the progress of their acquisition efforts.

Update 07-14 Dave Sharik inquired into the status of the amended oil lube permit. T. Chisholm responded it is ready to submit and should be forwarded to the proper channels by the afternoon of 14<sup>th</sup>. July. Also, at this time Dave Sharik reported Contract Bid Item No. 15, "Temporary Fuel Tanks" is to be deleted from the contract as it is no longer needed due to the emergency supply of temporary tanks under an independent contract.

**Update 07-21 Dave Sharik reported the change order to delete Bid Item No. 15 has been forwarded to MTA for review and enactment. Closed.**

e. At this time the contractor requested additional copies of the contract drawings and specifications. He was informed the drawings are available on CADD which would be supplied

Update 06-23 Awaiting action from Harry Johnson, have not received as of this date. Unknown format need 6 copies.

Update 06-30 Harry has copies of the contract drawings and specifications needs to expedite transfer of copies to TEC.

Update 07-07 Unchanged.

Update 07-14 Unchanged.

**Update 07-21 Harry Johnson reported the additional copies of the contract and drawings including the CADD cd are awaiting pickup at MTA Facilities Engineering. Closed.**

06-23-01 Dave Sharik discussed Contract Bid Item 003 Engineer's Field Office with TEC. MTA will not need an office trailer supplied per the contract, item is to be utilized to maintain and supply existing field office and paid by receipts for materials and services as used and supplied.

Update 06-30 Dave Sharik is to furnish contact person at D-E to coordinate the transfer of services to TEC.

Update 07-07 Dave Sharik reported the D-E contact person is Mark McGuire (Phone 410-574-8400) to coordinate the transfer of services from D-E to TEC. A brief discussion and description of the services to be provided took place at this time.

Update 07-14 Upon inquiry Saul Grosser responded TEC is in the process of coordinating the change over of services with D-E, but is not yet completed.

- Update 07-21** Saul Grosser reported TEC is in contact with D-E and has requested information on open accounts to transfer the charges over.
- 06-30-01 Dave Sharik reminded the contractor of the requirement to take existing site photographs. Saul Grosser responded they have been taken and will forward a set of photographs and a CD to make additional copies if desired.
- Update 07-07** Dave Sharik inquired into the existing site photographs. Saul Grosser responded they have been taken and will be forwarded shortly.
- Update 07-14** Unchanged.
- Update 07-21** Dave Sharik inquired into the existing site photographs. Saul Grosser hand delivered the photographs at this time which were reviewed and returned to TEC to be resubmitted in the correct size and title format.
- 07-07-03 Deno Yenias expressed concern regarding protection of the existing site utilities and suggested that once located they should be test pitted to verify their type and location. Also, requested Facilities Engineering to generate a plan for support of existing utilities (electrical duct bank).
- Update 07-14** Saul Grosser reported plan to test pit to locate the existing sanitary line and electrical duct bank before any major excavation is to take place. Harry Johnson reported Facilities Engineering is still studying the plan to support the existing duct bank.
- Update 07-21** Harry Johnson reported Facilities Engineering is still reviewing plans to support the electrical duct bank, support or remove and replace the existing sanitary line, and the shut off and protection of the existing water line. Deno Yenias reminded Harry of the need to expedite these plans as time is of importance to this operation.
- 07-14-01 Dave Sharik reviewed the time constraints on the major submittals and stressed the impact a resubmittal of critical items could jeopardize the timely completion of the project. Saul responded TEC recognized the situation and was moving to have many of these critical items submitted. Safety Plan, Work Plan, Revised Schedule, and Material Submittals were hand delivered after the meeting for submittal and review by MTA.
- Update 07-21** Closed.
- 07-14-02 Dave Sharik reminded Harry Johnson contrary to the memo he received from Facilities Engineering, it is Facilities Engineering's duty to contact and notify DGS regarding removal of the fuel in tanks and the shutdown of the fuel pumps.
- Update 07-21** Harry Johnson reported Facilities Engineering has not yet contacted DGS to have the fuel removed from existing tanks and shutting down of the pumps.
- 07-14-03 Dave Auchu requested Submittals of the Safety Plan and the MSDS Requests to expedite the approval of these items. Safety Plan was hand delivered after the meeting.

Update 07-21 Dave Sharik reported the Safety Plan is still under review by MTA Safety.

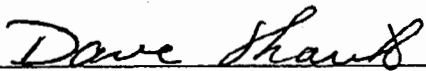
- 07-14-04 Drew Miller reported G-F is to begin site assessment next week and will locate the fiber optic cable running adjacent to the area of disturbance.  
Update 07-21 Drew Miller reported the layout of existing site utilities with the exception of the water line were located on 14<sup>th</sup>. July.

New Business

- 07-21-01 Bill Wilson is to check on any other possible drainage running into the existing sanitary line which may be removed during the tank replacement.
- 07-21-02 Deno Yenias gave a verbal confirmation that the material submittal approvals would allow TEC to order the lubrication and fuel tanks due to their lead time necessary.
- 07-21-03 Deno Yenias requested a set of drawing showing the plan locations of the observation wells from G-F. Drew Miller promised these drawings would be forthcoming.
- 07-21-04 Ted Bedell discussed the sequencing of operations in the schedule of work, specifically the installation and removal of the lube oil system. Harry Johnson is to respond in writing to verify the change in sequence.
- 07-21-05 At this time, Ted Bedell hand delivered RFI Nos. 4 thru 7 for review and response.
- 07-21-06 Deno Yenias tabled the issue of cathodic protection for the new installation. Ted Bedell stated the underground portion of the tank and piping replacement is fiberglass and non conductive. Also, when removed from excavation the existing anodes from the cathodic protection on site will be turned over to MTA for inspection.

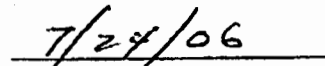
There being no further business to discuss the meeting adjourned at 10:05 AM.

*There being no further business to discuss, the meeting adjourned. The next meeting is scheduled for 28<sup>st</sup>. July 2006 at 9:00 AM in Building No. 1 Bush Bus Division. The above information is my understanding of the various items discussed during the meeting. Please contact me within the next five days if there are any revisions necessary.*



David Sharik

Resident Engineer

  
Date

cc: Attendees

D. Yenias     G. Schuster  
Clyde Raleigh Contract File

S. Silva  
Job File

D. Lyons

# Progress Meeting No. 005

21 July 2006

## ATTENDEES SIGN-IN SHEET

BUSH BUS DIVISION  
UNDERGROUND STORAGE TANK REPLACEMENT

CONTRACT NO. T-1149-0140

NAME	ORGANIZATION	PHONE NO.
DAVE SHARIK	MTA	410-764-9700
Bob Grabowski	MTA	"
Clyde Raleigh	MTA/PB	1-443-370-1088
DAVE MORSE	MTA	410-767-3337
Bill Wilson	MTA	410-767-3342
DENY YENIAS	MTA	767-3328
Drew Miller	GANNETT FLEMING	410 585-1460
JEFF GERARD	GANNETT FLEMING	410 585-1460
TED BEDELL	Total Environmental	301-548-0382
Saul Grosser	TBC	301-548-0382
Bob CHLDS	MTA	(410) 764-9700
H.C. Johnson	MTA	(410) 767-3829

MTA T-1149-140  
Submittal Log

[illegible]

**8. Tank Monitoring:** MTA is expediting the upgrade of its Electronic Tank Monitoring System.

MTA has a Veeder Route system for electronic tank monitoring for all of its Bus Divisions. MTA is in the process of upgrading this system so that it will be able to reconcile electronically all fuel from underground and above ground storage tanks. Significantly, MTA will have a reliable fuel reconciliation system at its Northwest, Kirk, and Easter Divisions this fall. MTA's fourth Bus Division, Washington Boulevard, is expected to complete this system by the end of the year.

- 9. Standard Operating Procedures:** MTA is developing SOPs for multiple environmental management concerns, including issues such as UST management and waste management, in advance of formally instituting the EMS process.

MTA has developed and adopted an SOP for Bus Maintenance to support inventory reconciliation and control of ASTs and USTs. (See Tab A.) Similar SOPs are being developed for Light Rail, Metro, and MARC Train.

MTA has also developed, and is currently implementing, an SOP on Hazardous Waste Recordkeeping. (See Tab B.) This SOP is to provide instruction on how to properly monitor and track all hazardous waste manifest and land disposal restriction (LDR) forms for the transportation and disposal of hazardous and non-hazardous waste.

Finally, MTA has developed an SOP to address Waste Determination, Storage and Labeling. (See Tab C.)





# BUS OPERATIONS STANDARD OPERATING PROCEDURE

cedure No. BUS.01.07.06

Rev No. 2

Issue Date: 7/19/2006

Supersedes Procedure/Bulletin No. N/A

Page 1 of 24

## FLUID STORAGE TANK MONITORING AND INVENTORY CONTROL

### I. Subject:

Monitoring of bulk fluid (diesel fuel, lube oil, coolant etc.) delivery, storage and consumption at Maryland Transit Administration Bus Divisions.

### II. Purpose:

To account for all fluids delivered to bulk tanks, to monitor the integrity of the underground storage tanks to avoid release of product due to structural failure, leaks, spills, corrosion or overfills.

### III. Responsibilities:

Division Superintendent to collect and evaluate the logs compiled by the division clerks.

Division clerks or their designee to collect data daily and submit to the Division Superintendent.

Facilities Maintenance personnel to complete necessary inspections.

### IV. Definitions:

Superintendent - Superintendent or his designee.

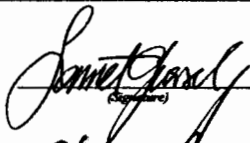
MDE – Maryland Department of Environment

### V. Procedure:

- a. A fuel consumption log shall be kept at the pump; all the MTA employees using the pump shall record the fuel pumped to 0.10 of a gallon, no exceptions.
- b. Using Veeder Root ATG or other method an inventory of tanks must be checked daily at the end of the fueling shift, preferably at 7:00 am when dispenser totalizer readings are collected. No fuel can

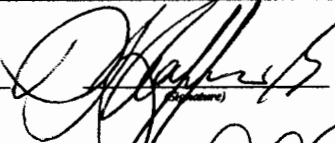
Prepared By:

Samet Gursel  
(Print Name)

 7/19/06  
(Signature) (Date)

Reviewed By:

Dennis Rafferty Sr.  
(Print Name)

 7/19/06  
(Signature) (Date)

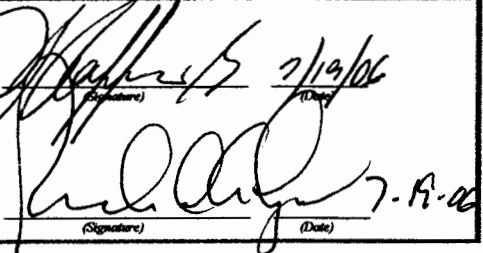
Reviewed By:

Charles Remmey  
(Print Name)

 7/19/06  
(Signature) (Date)

Approved By:

Richard Lyons  
(Print Name)

 7-19-06  
(Signature) (Date)



# BUS OPERATIONS STANDARD OPERATING PROCEDURE

Procedure No. BUS.01.07.06

Rev No. 2

Issue Date: 7/19/2006

Supersedes Procedure/Bulletin No. N/A

Page 2 of 24

be added or removed while performing steps "b" and "f".

- c. Tank water contents must be checked monthly (Veeder Root or Water Paste).
- d. A digital (Veeder Root) reading shall be taken before and after each fluid delivery (If tank is not Veeder Root equipped perform manual tank gauging). For each shift, a single designee of the Division Superintendent with a designated backup shall monitor every fuel delivery seven days a week. Wait ten (10) minutes after the fluid delivery to allow for trapped air to leave fluid. Copies of the Veeder Root readings must be kept for one year.
- e. Designee of the Superintendent shall inspect the condition of the Spill Containment areas after each fluid delivery. Spill buckets must be free of product.
- f. Fuel pump readings are to be taken at 7 a.m. by designated personnel. The fuel pump readings with the fuel consumption log shall be turned in to the Division Clerk or to his/her designee by 8 a.m. including the weekends.
- g. Fuel consumption log sheets are to be replaced with a new one after the daily removal of the preceding days log and reading. The new log sheet must include the current pump reading.
- h. Divisions are to reconcile deliveries, consumption, and amount-stored daily. If daily inventory shows 7 consecutive days of shortage or overage totaling 80 gallons or more (i.e. add up the shortages (-) and overages (+) for the previous seven days. The result shall be between -80 and +80 gallons). Division Superintendent shall immediately begin an investigation and inform the Office of Safety and Risk Management.
- i. A monthly reconciliation consumption form must be compiled by the Division Superintendent, showing the total consumption and all the deliveries. The maximum change in inventory allowed is 1% plus 130 gallons. Superintendent shall maintain all reconciliation copies for a period of one (1) year and send a copy of monthly reconciliation sheet to The Office of Safety and Risk Management (OSRM).

Prepared By:

Samet Gursel  
(Print Name)

*Samet Gursel* 7/19/06  
(Signature) (Date)

Reviewed By:

Dennis Rafferty Sr.  
(Print Name)

*Dennis Rafferty Sr.* 7/19/06  
(Signature) (Date)

Reviewed By:

Charles Remmey  
(Print Name)

*Charles Remmey* 7/19/06  
(Signature) (Date)

Approved By:

Richard Lyons  
(Print Name)

*Richard Lyons* 7-19-06  
(Signature) (Date)



# BUS OPERATIONS STANDARD OPERATING PROCEDURE

Procedure No. BUS.01.07.06

Rev No. 2

Issue Date: 7/19/2006

Supersedes Procedure/Bulletin No. N/A

Page 3 of 24

- j. If the volume of a storage tank is greater than 2,000 gallons, a stick cannot be used for inventory control. Consult the attached document for proper methods for doing inventory control.
- k. All inventory control records must be retained for one year.
- l. Any suspected leak or spill shall be reported to the MTA Office of Safety and Risk Management immediately and to the Maryland Department of Environment within 2 hours. Call the Bus Operations Control Room @ 410-454-7101 and request an Emergency Notification System page, also call the OSRM hotline at 410-454-7150. The Safety Office then shall notify Maryland Department of the Environment.
- m. Facilities Maintenance is to gauge all the ground water monitoring wells weekly at Washington Blvd. (monthly at all other locations) using an electronic interface tape. Facilities Maintenance is also to make daily documented inspections of the Washington Blvd. Yard oil separator until further notice from EPA. These inspections shall be documented and submitted to the Office of Safety and Risk Management weekly.
- n. Division clerk or his/her designee shall complete a daily inspection on all Aboveground Storage Tanks (AST) using the attached Inspection Form.
- o. All inspection reports must be retained for three (3) years at the Division. Copies of all inspection reports are to be sent to the Industrial Safety Officer at Office of Safety and Risk Management.
- p. A complete list of the registered MDE spill contractors can be found on the MTA Office of Safety and Risk Management intranet page.
- q. Investigation of a suspected release must begin within 48 hours of the release.
- r. Division Superintendent and Facilities Maintenance Superintendent shall be made aware of the spill as soon as Safety Department is informed.

Prepared By:

Samet Gursel  
(Print Name)

*Samet Gursel* 7/19/06  
(Signature) (Date)

Reviewed By:

Dennis Rafferty Sr.  
(Print Name)

*Dennis Rafferty Sr.* 7/19/06  
(Signature) (Date)

Reviewed By:

Charles Remmey  
(Print Name)

*Charles Remmey* 7/19/06  
(Signature) (Date)

Approved By:

Richard Lyons  
(Print Name)

*Richard Lyons* 7.19.06  
(Signature) (Date)



# BUS OPERATIONS STANDARD OPERATING PROCEDURE

Procedure No. BUS.01.07.06

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**VI. Attachments and Forms:**

Aboveground Storage Tank Daily Inspection Form

Daily Inventory Worksheet

Monthly Inventory Worksheet

Doing Inventory Control Right – EPA Document # 510-B-93-004

**VII. Authority or Reference: Director of Maintenance, Director of Safety**

**VIII. Distribution: Bus Maintenance Management, Facilities Maintenance, Quality Assurance, Safety**

**Prepared By:**

Samet Gursel  
(Print Name)

 7/19/06  
(Signature) (Date)

**Reviewed By:**

Dennis Rafferty Sr.  
(Print Name)

 7/19/06  
(Signature) (Date)

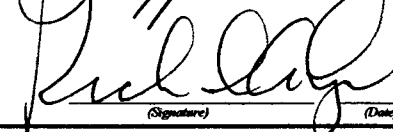
**Reviewed By:**

Charles Remmey  
(Print Name)

 7/19/06  
(Signature) (Date)

**Approved By:**

Richard Lyons  
(Print Name)

 7-19-06  
(Signature) (Date)

Division Name: \_\_\_\_\_

Date: From \_\_\_\_\_ to \_\_\_\_\_

**ABOVEGROUND STORAGE TANK DAILY INSPECTION FORM**

		INITIALS of the INSPECTOR →							
			Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
	1.1	Housekeeping (facility clean, free of unnecessary items)							
SAFETY	2.1	Fire extinguishers: adequate, accessible and charged							
	2.2	No Smoking signs: posted and visible							
	2.3	Danger & Warning Signs: posted and visible							
SECURITY	3.1	Fencing: intact, gates locked							
	3.2	Lighting: adequate, lights functioning properly							
ABOVEGROUND TANKS (bulk fuel and day tanks)	4.1	Soundness: no visible leaks, weeping or drips along the seams or tank bottoms							
	4.2	Corrosion Protection: sacrificial metals sufficient, impressed currents functioning, signs of rust or corrosion							
	4.3	Tank Signs: product stored, storage capacity and fire hazard rating							
	4.4	Vents: clear							
	4.5	Paint: no peeling, cracking or bleeding							
	4.6	Foundation: solid, no cracks or rotting							
	4.7	Gauges and overfill devices: Gauges Working							
PIPING AND HOSES	5.1	Soundness: no visible leaks, drips or cracks especially at supports, joints elbows and fittings.							
	5.2	Corrosion Protection: rust or corrosion, sacrificial anodes, impressed current							
	5.3	Support: adequate							
	5.4	Valves: no visible leaks and in good working condition							
	5.5	Protection: from falling snow and ice & traffic							
	5.6	Coating, Wrapping and Paint: wear, tear, chipping							
SPILL PREVENTION RESPONSE	6.1	Response Plan: located at facility							
	6.2	Response Equipment: adequate, located at site and in good working order							

POSTING DATE: \_\_\_\_\_

INITIAL: \_\_\_\_\_

**Note:** Consumption figures (totalizer readings) in the "End of the Day" column of the collected sheet must be copied to the "Start of the Day" column during the swap.

"End of the Day" column in Delivery section must be filled out before collection.

## DAILY INVENTORY CONTROL WORKSHEET

CONSUMPTION		Reading During Posting (Start of the Day, 7 A.M.)	Reading During Collection (End of the Day, 7 A.M.)	Fuel Sheet Total
	Totalizer #1			
	Totalizer #2			
	Totalizer #3			
	Totalizer #4			
	Totalizer #5			
	Totalizer #6			
	<b>TOTAL</b>			

NOTES: \_\_\_\_\_

DELIVERY	TIME		End of the Day		Before the Delivery		After the Delivery		
			Inches	Gallons	Inches	Gallons	Inches	Gallons	
		TANK _____	Veeder Root						
			Clock Gauge						
		TANK _____	Veeder Root						
			Clock Gauge						
		TANK _____	Veeder Root						
			Clock Gauge						
		TANK _____	Veeder Root						
			Clock Gauge						
<b>TOTAL</b>									

NOTES: \_\_\_\_\_

COLLECTION DATE: \_\_\_\_\_

DIVISION: \_\_\_\_\_

YOUR NAME: \_\_\_\_\_

PAYROLL NUMBER: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

Month: \_\_\_\_\_

## Monthly Inventory Record

DATE	START STICK INVENTORY (GALLONS)	GALLONS DELIVERED	GALLONS PUMPED	BOOK INVENTORY (GALLONS)	END STICK INVENTORY		DAILY OVER (+) OR SHORT (-) ["End" - "Book"]	INITIAL S
					(INCHES) T	(GALLONS)		
1	(+)	(-)	(=)					
2	(+)	(-)	(=)					
3	(+)	(-)	(=)					
4	(+)	(-)	(=)					
5	(+)	(-)	(=)					
6	(+)	(-)	(=)					
7	(+)	(-)	(=)					
8	(+)	(-)	(=)					
9	(+)	(-)	(=)					
10	(+)	(-)	(=)					
11	(+)	(-)	(=)					
12	(+)	(-)	(=)					
13	(+)	(-)	(=)					
14	(+)	(-)	(=)					
15	(+)	(-)	(=)					
16	(+)	(-)	(=)					
17	(+)	(-)	(=)					
18	(+)	(-)	(=)					
19	(+)	(-)	(=)					
20	(+)	(-)	(=)					
21	(+)	(-)	(=)					
22	(+)	(-)	(=)					
23	(+)	(-)	(=)					
24	(+)	(-)	(=)					
25	(+)	(-)	(=)					
26	(+)	(-)	(=)					
27	(+)	(-)	(=)					
28	(+)	(-)	(=)					
29	(+)	(-)	(=)					
30	(+)	(-)	(=)					
31	(+)	(-)	(=)					

TOTAL GALLONS PUMPED >

TOTAL GALLONS OVER OR SHORT >

COMPILATION DATE: \_\_\_\_\_

DIVISION: \_\_\_\_\_

YOUR NAME: \_\_\_\_\_

PAYROLL NUMBER: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

SUPERINTENDENT NAME:

SIGNATURE:



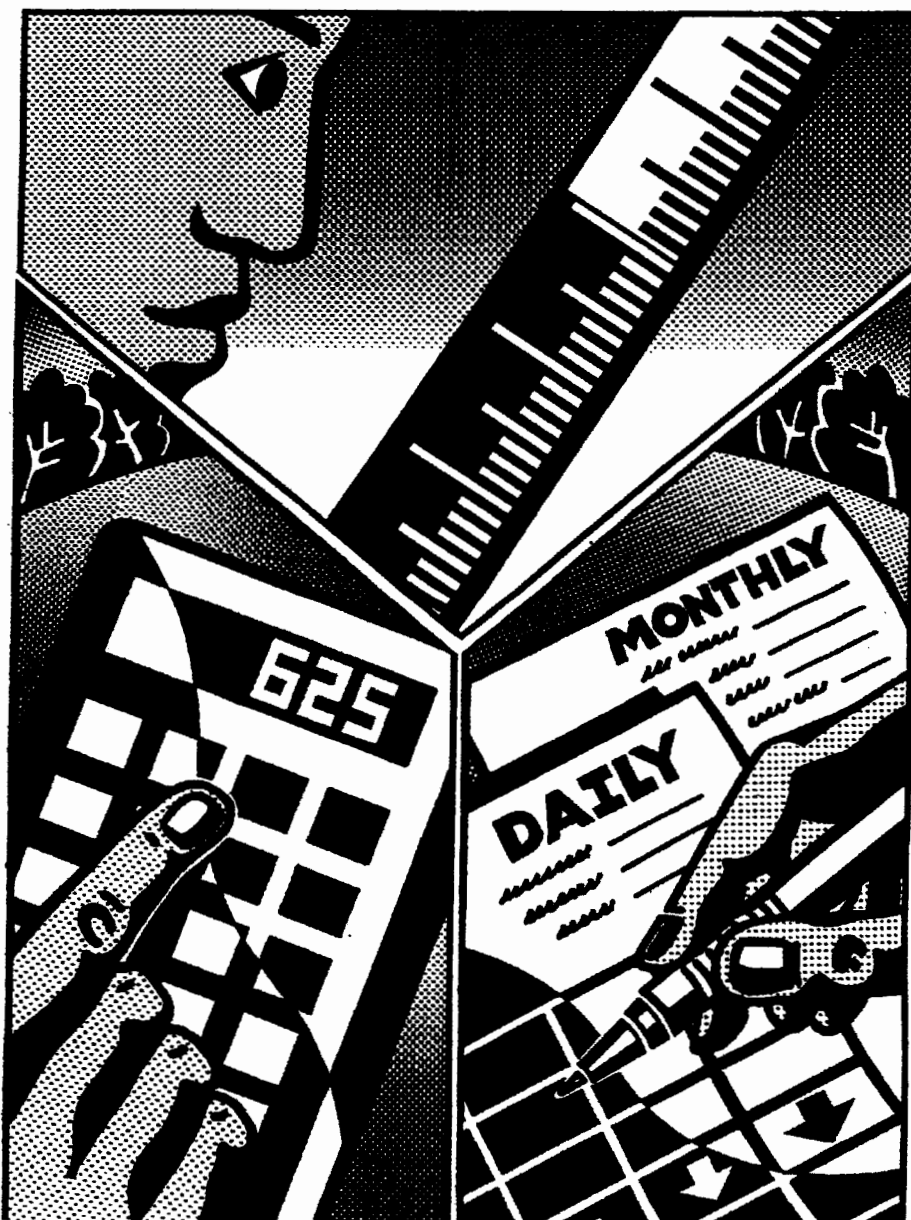
United States  
Environmental Protection  
Agency

Solid Waste And  
Emergency Response  
5403W

EPA 510-B-93-004  
November 1993

# Doing Inventory Control Right

## For Underground Storage Tanks



COMPILATION  
YOUR NAME:

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# CONTENTS

Why You Should Read This Booklet If You Use Inventory Control .....	1
How Does Inventory Control Work? .....	2
Do You Have The Right Equipment? .....	4
Step 1 — Measure The Tank's Contents .....	6
Step 2 — Record The Amount Pumped .....	7
Step 3 — Record Fuel Deliverables .....	8
Using Tank Charts Without 1/8-Inch Conversions .....	9
Step 4 — Calculate Daily Change In Inventory .....	10
Step 5 — Calculate Monthly Changes In Inventory .....	12

# **Why You Should Read This Booklet If You Use Inventory Control**

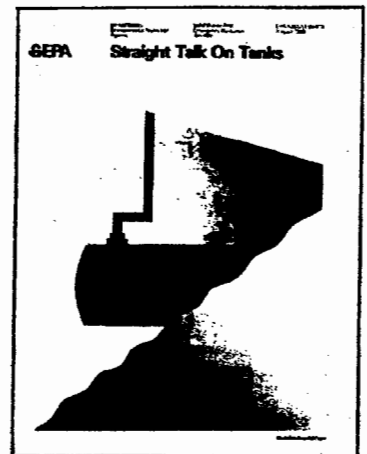
Federal and state laws require underground storage tanks (USTs) to have leak detection.

If your USTs do not have leak detection, you can be cited for violations and fined. Leak detection violations can also keep you from getting legally required insurance coverage and reimbursement for cleanup costs. Without leak detection, you constantly risk discovering a leak only after it becomes a major financial burden for yourself and an environmental problem for everyone.

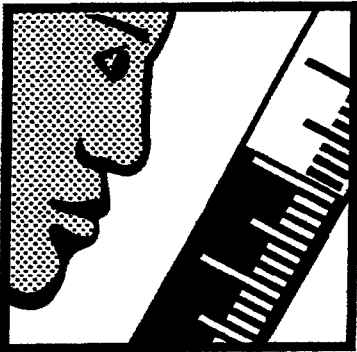
**If inventory control is part of your leak detection, then this booklet can help you make sure you do inventory control correctly.**

Inspections conducted nationwide indicate that most people who think they are doing inventory control are not doing it in a way that is likely to find leaks and meet the law's requirements for leak detection. So even if you are SURE you are doing inventory control right, read this booklet carefully—it could save you a lot of grief and money.

If you need information on federal leak detection requirements and the various methods of leak detection available to you, see "Straight Talk On Tanks." Call EPA's toll-free Hotline at 800 424-9346 and order this free publication by number: EPA 530/UST-90/012.



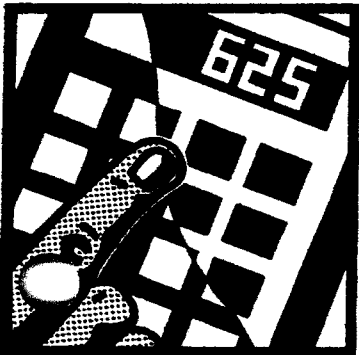
## How Does Inventory Control Work?



This booklet helps you use inventory control to meet federal regulatory leak detection requirements by showing you how to do three important tasks:

- Good sticking
- Good math
- Good recordkeeping

Without these three, you may fail to meet the leak detection requirements. To do inventory control right, you have to spend time to make sure that you consistently measure the tank's contents correctly, that you don't let math errors creep into your daily and monthly calculations, and that you keep complete, easy-to-read records on file for at least a year.



Basically, inventory control requires daily measurements of tank contents and math calculations that let you compare your "stick" inventory (what you've measured) to your "book" inventory (what your recordkeeping indicates you should have). Some people call this process "inventory reconciliation." If the difference between your "stick" and "book" inventory is too large, your tank may be leaking.

Be sure you read about several important restrictions on the use of inventory control that are described on the next page.



***To use INVENTORY CONTROL correctly,  
follow Steps 1—5 starting on page 6.***

**Please note these important restrictions on the use of inventory control as leak detection:**

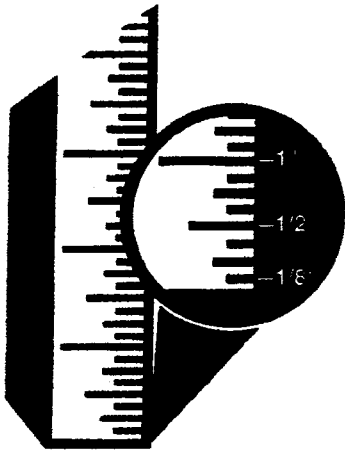
- **Inventory control can never be used alone.** Inventory control must always be used in combination with tank tightness testing. Tanks must be tightness tested every 12 months if they do not have corrosion protection and spill/overfill devices. Tanks with corrosion protection and spill/overfill devices must be tested every 5 years.
- **Inventory control is a TEMPORARY leak detection method.** You can use inventory control only for 10 years after installing a new tank that has corrosion protection and spill/overfill devices or for 10 years after upgrading an old tank with corrosion protection and spill/overfill devices. After the 10-year period, you must use a monthly monitoring method, such as groundwater monitoring or interstitial monitoring.

Tanks without corrosion protection and spill/overfill devices can use inventory control only until December 1998, when these tanks must be upgraded or closed. (See "Straight Talk On Tanks.")

- **The combined use of inventory control and tank tightness testing does not meet your tank system's leak detection requirements for piping.** Pressurized and some suction piping must use other methods of leak detection, such as interstitial monitoring. (See "Straight Talk On Tanks.")

**If you don't pay careful attention to these restrictions, you will fail to meet the leak detection requirements.**

## Do You Have The Right Equipment?



### Gauge Stick Or Other Gauges

The gauge stick used to measure the depth of liquid in an underground tank must be marked or notched to the    inch, starting with zero at the bottom end. Check your stick to be sure the end has not been worn or cut off and that the stick is not warped. The stick should be made of non-sparking material, such as wood, and varnished to minimize the creeping of fuel above the actual fuel level in the tank. Instead of using a gauge stick, you may use a mechanical or electronic tank level monitor. Whatever measuring device you use must be capable of measuring the level of product over the full range of the tank's height to the nearest    inch.



### Pastes For Finding Water Or Fuel

You must check for water in the bottom of the tank at least once each month by smearing a water-finding paste along the bottom of the gauge stick. The paste changes color when it comes in contact with water. Many operators improve their stick readings by smearing a fuel-finding paste on about 6 inches of the stick where they expect the fuel level to be. Fuel-finding paste changes color when it comes in contact with fuel.

### Forms

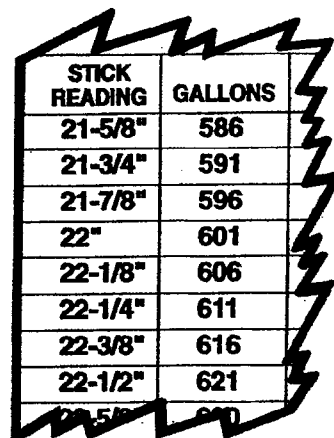
The instructions in this booklet are keyed to two forms: the "DAILY INVENTORY WORKSHEET" and the "MONTHLY INVENTORY RECORD." You will find filled-in sample copies of these forms on the last two pages of this booklet. These samples are on perforated pages, so tear them out and refer to them while you read through the directions that are keyed alphabetically to the sample forms. Also, near the back of the booklet, you will find "masters" you can copy repeatedly to provide forms for use in your recordkeeping. If these forms are filled out according to the instructions in this booklet, you will be in compliance with federal regulations for inventory control. You should find out if state or local requirements have limitations on the use of inventory control or have requirements that are different from those presented in this booklet. You can use other standard recordkeeping forms, as long as they are clear, consistent, and contain all the information required by the federal and state leak detection regulations.



### Tank Chart

A tank chart is a table that converts the number of inches of liquid in the tank into the number of gallons. You need a tank chart that exactly matches your storage tank (tank manufacturers usually provide charts for their tanks). If you have more than one tank, you will need a chart for each tank unless the tanks are identical. The tank chart must show conversion to gallons for each    inch stick reading. If your tank chart does not convert each    inch reading into gallons, contact the tank manufacturer, or, if you have a steel tank, the Steel Tank Association (708 438-8265) to get an appropriate chart.

You always need to convert inches into gallons in order to fill out the forms correctly and to do the necessary math. To convert inches into gallons, find your stick's reading to the nearest    inch on the tank chart, then simply read across to the gallons column to find the number of gallons. If you cannot get a tank chart showing conversion to gallons for each    inch reading, you must do the additional math explained on page 9.



STICK READING	GALLONS
21-5/8"	586
21-3/4"	591
21-7/8"	596
22"	601
22-1/8"	606
22-1/4"	611
22-3/8"	616
22-1/2"	621
22-5/8"	626

### Drop Tube

The fill pipe through which the fuel is delivered into the tank must have a drop tube extending to within 1 foot of the bottom of the tank. Stick measurements should be made through a drop tube in the fill pipe or gauging port. If your fill pipe does not have a drop tube, call your petroleum equipment supplier to have one installed.

### Calibrated Dispensing Meters

Meters must be calibrated according to local standards.

### Manifolded Tanks

If you have manifolded tanks or dispensers that blend fuel, consider these tanks as one tank system if they share a common inventory of stored fuel. As you follow the directions on the following pages, you will need to combine your measurements and calculations for all the tanks manifolded into one system.

## Step 1—Measure The Tank's Contents

You must measure the tank every day that fuel is added or removed. You may take measurements using a gauge stick or a mechanical or electronic tank level monitor.

**Use the sample "DAILY INVENTORY WORKSHEET" from the last two pages of the booklet to see where you put the information from letters "A" through "M" in the following directions.**

No fuel can be added or removed from the tank while you are performing Step 1 or Step 2.

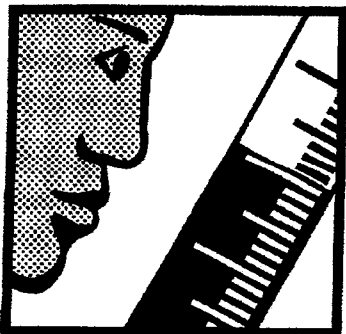
Every day you measure the tank, you should fill out a "DAILY INVENTORY WORKSHEET." As you go through the following directions, refer to the sample DAILY INVENTORY WORKSHEET you will find on the last pages of this booklet. For easy reference, the sample is on a perforated page so you can tear it out and keep it handy as you read through the directions. Also, near the back of the booklet is a "master copy" on a perforated page you can tear out to make copies of the DAILY INVENTORY WORKSHEET for your recordkeeping.

- A** Fill in the identifying information at the top of the worksheet.
- B** Next to the "TANK IDENTIFICATION" box are empty vertical columns. Each column represents one tank—consistently enter all information on that one tank in the same vertical column. **NOTE:** Once you have filled in the tank identification boxes, make copies of the worksheet so you won't have to repeatedly enter the same information.

**USE GOOD STICKING PRACTICES:** Slowly lower the gauge stick to the tank's bottom. Let the stick gently touch the bottom, then quickly bring it back up. Read the depth of fuel indicated by the wet mark to the closest    inch division on the stick. Use of fuel-finding paste will make your stick readings more accurate.

- C** Write your measurement in the box labeled "END STICK INCHES" for the tank you measured.

**NOTE:** If your tank is equipped with an automatic tank gauge (ATG), you may record the inches of product and gallons of product directly from the ATG's printed tape or simply staple the tape with this information to the worksheet.



## Step 2—Record The Amount Pumped

At the same time you measure the tank contents (Step 1), you must record on the DAILY INVENTORY WORKSHEET the amount of fuel pumped. No fuel can be added or removed from the tank while you are sticking the tank and recording the amount pumped.



- D Locate the box labeled "AMOUNT PUMPED" on the left side of the worksheet. Copy the numbers from each dispenser's totalizer onto the worksheet. **Be very careful that you write all the meter readings for a tank in the same column.** You may have several dispensers and totalizers for one tank, so the worksheet provides boxes in which you can enter several readings in any order.
- E Add up the totalizer meter readings in each column and write the result in the box labeled "TODAY'S SUM OF TOTALIZERS."
- F Find the last DAILY INVENTORY WORKSHEET you completed. Copy "TODAY'S SUM OF TOTALIZERS" from that worksheet into the "Previous Day's Sum of Totalizers" box of the worksheet you are working on today.
- G On today's worksheet, subtract "Previous Day's Sum of Totalizers" from "TODAY'S SUM OF TOTALIZERS" and write the result in the box labeled "AMOUNT PUMPED TODAY."

You may have an alternative to reading totalizers. If you have a self-service fueling operation where the cashier can authorize fuel sales from inside the facility, you can probably print out a daily report that gives you the total sales for each type of fuel. **NOTE:** You can use the sales volumes from this report instead of reading your totalizer meters only if no fuel sales are made between the time you print the report from the cash register and the time you measure your tanks (Step 1).

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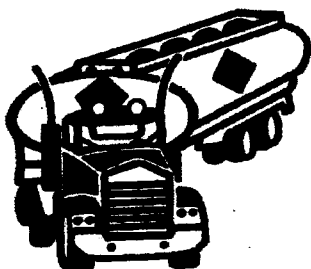
*If you pumped fuel through a dispenser and back into a tank, for example during a test, subtract the number of gallons you pumped from "AMOUNT PUMPED TODAY."*

---

- H If you are using cash register reports to record the amount pumped, enter the amount of each type of fuel pumped in the box labeled "AMOUNT PUMPED TODAY" or staple the printout to the worksheet.



## Step 3—Record Fuel Deliveries



You must check how much fuel has been delivered every time any amount of fuel is delivered to your tank. **NOTE: You should not pump any fuel during the time it takes to do items "I" and "J" below.**

Before the delivery begins, the liquid level in the tank must be measured. Always use good sticking practices: slowly lower the gauge stick, gently touch the stick to the bottom of the tank, then quickly bring the stick back up. Read the depth of fuel indicated by the wet mark to the nearest    inch division on the stick.

- Write your measurement in the box labeled "Inches of Fuel Before Delivery" for each tank you measured.

The delivery person can now deliver fuel into the tank. After the delivery, wait at least 5 minutes for the fuel level in the tank to stabilize, and then measure again as described above.

- Record fuel level in the box labeled "Inches of Fuel After Delivery."
- Using your tank chart with    inch readings, convert both delivery readings to the correct number of gallons. Record these numbers in the boxes labeled "Gallons of Fuel Before Delivery" and "Gallons of Fuel After Delivery." (If necessary, see page 9 on converting inches into gallons.)
- Subtract "Gallons of Fuel Before Delivery" from "Gallons of Fuel After Delivery." Record the result in the box labeled "GALLONS DELIVERED (STICK)."

Now look at the delivery receipt and find the volume of each type of product that was delivered. If two volumes are given, one labeled "net" and the other "gross," use the gross gallons as the volume of product delivered.

- For each type of fuel delivered, copy the gross gallons delivered from the delivery receipt onto the worksheet in the box labeled "GROSS GALLONS DELIVERED (RECEIPT)." The gallons in items "L" and "M" should roughly match. If they don't, contact your supplier.

**An automatic tank gauge (ATG) can usually print a delivery report. If your tank has an ATG that prints such a report, you may simply staple the ATG's delivery report to the DAILY INVENTORY WORKSHEET.**

# Using Tank Charts Without \_ Inch Conversions

If your tank chart does not list direct conversions from inches to gallons for every \_ inch, then you must do the additional math described below every time you stick your tank.

The easiest way to explain this procedure is with an example. Let's say you have a stick reading of 43\_ inches and you need to figure how many gallons are in your tank.

1. Look on your tank chart and find the inch measurements that are just above and below your stick reading and write down the number of gallons for these inch readings. Subtract the gallon readings to find the difference between the two readings:

Chart reading at 44 inches:	3,585 gallons
Chart reading at 43 inches:	3,480 gallons

---

Difference: 105 gallons

2. Dividing 105 by 8 will give you the number of gallons per \_ inch, which in this example is 13. (More exactly it is 13.125, but do round off the number to the nearest whole number.) Because your fraction is \_, multiply 13 gallons by 3, which gives you 39 gallons as the volume represented by \_ inch.

**CAUTION:** The gallons represented by each \_ inch will vary from top to bottom of the tank and must be calculated for each conversion.

3. Take the number of gallons you have just calculated and add it to the inch reading just below your actual stick reading:

Chart reading at 43 inches:	3,480 gallons
Gallons at _ inch:	+ 39 gallons

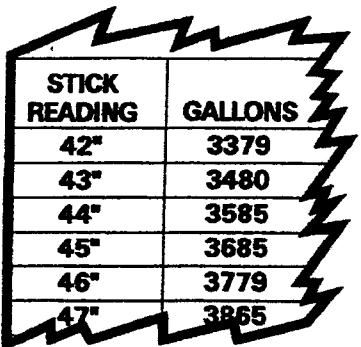
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Sum: 3,519 gallons

Thus, your stick reading of 43\_ inches converts to 3,519 gallons.

**NOTE:** If your tank chart is in half or quarter inches, you must still use this procedure so that your gallon readings are accurate to \_ inch.

After all of this math, you can see why it pays to have the correct tank chart that indicates gallons for each \_ inch.



STICK READING	GALLONS
42"	3379
43"	3480
44"	3585
45"	3685
46"	3779
47"	3865

## Step 4—Calculate Daily Changes In Inventory

In this step, you will copy information from the DAILY INVENTORY WORKSHEET onto the MONTHLY INVENTORY RECORD. You will then do some math to determine your daily inventory. You need one MONTHLY INVENTORY RECORD for each tank that you have.

As you go through the following directions, refer to the sample MONTHLY INVENTORY RECORD you will find on the reverse side of the DAILY INVENTORY WORKSHEET sample you have already been using. For easy reference, the sample is on a perforated page so you can tear it out and keep it handy as you read through the directions. Also, near the back of the booklet is a "master copy" on a perforated page you can tear out to make copies of the MONTHLY INVENTORY RECORD for your recordkeeping.

***Use the sample "MONTHLY INVENTORY RECORD" from the last two pages of the booklet to see where you put the information from letters "N" through "Z" in the following directions.***

- N** Fill in the identifying information at the top of the MONTHLY INVENTORY RECORD.

**If this is the very first day of your inventory recordkeeping, convert the "END STICK INCHES" from the DAILY WORKSHEET into gallons and enter on the MONTHLY RECORD under "END STICK INVENTORY (GALLONS)" for that starting date. (If necessary, see page 9 on converting inches into gallons.) This is all you can do today. Starting tomorrow, follow all of the instructions listed below.**

- O** Find the line in the left column on the MONTHLY RECORD with today's date listed. Copy the previous day's "END STICK INVENTORY (GALLONS)" number into the box for today's "START STICK INVENTORY (GALLONS)."
- P** Enter the amount of fuel delivered from the DAILY INVENTORY WORKSHEET. If you were NOT pumping fuel during the time when the delivery was taking place, then use the "GALLONS DELIVERED (STICK)" number. However, if you had to pump fuel while the delivery was taking place, then use the "GROSS GALLONS DELIVERED (RECEIPT)" number as your delivery amount.
- Q** Copy the "AMOUNT PUMPED TODAY" number from the DAILY INVENTORY WORKSHEET into the "GALLONS PUMPED" column of the MONTHLY INVENTORY RECORD.

- R** Add the "START STICK INVENTORY (GALLONS)" and the "GALLONS DELIVERED" columns; then subtract the "GALLONS PUMPED" column. Enter the result in the column labeled "BOOK INVENTORY (GALLONS)."

- S** Copy the "END STICK INCHES" number from the DAILY WORKSHEET into the column labeled "END STICK INVENTORY (INCHES)" on the MONTHLY RECORD. Convert inches into gallons and enter the result in the column on the MONTHLY RECORD labeled "END STICK INVENTORY (GALLONS)." (If necessary, see page 9 on converting inches into gallons.)

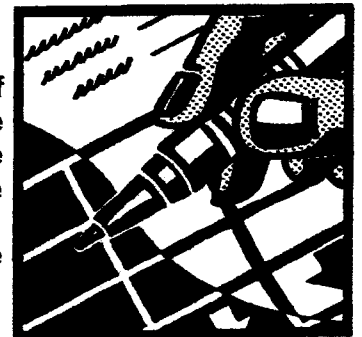
**GOOD ADVICE:** If you are "over" for 5 days in a row (or "under" for 5 days in a row), you should check for problems with your math and your UST.

- T** Subtract the "BOOK INVENTORY (GALLONS)" from the "END STICK INVENTORY (GALLONS)." Enter the difference into today's "DAILY OVER OR SHORT" box. This number will usually be a positive or negative number (only rarely will it be zero).

- U** Enter your initials to show who entered today's information.

**At least once each month, you must also measure for water in the tank.** Smear water-finding paste on the bottom few inches of the gauge stick. Open the fill pipe and **slowly** lower the stick to the tank's bottom. Hold the stick on the bottom for 10 seconds for gasoline (30 seconds for diesel). Then remove the stick. If there is water in the bottom of the tank, the water-finding paste will change color. Read the depth of water indicated by the line where the water-finding paste has changed color to the closest    inch division on the stick. **Do not use this stick reading to measure the amount of fuel in the tank,** because the fuel will creep up the stick and will give you an inaccurate reading.

- V** If you checked the tank for water today, enter the number of inches of water in the tank on the line under "Facility Name" at the top of the monthly record. If there is no water present, enter a zero to indicate that you in fact checked for water but found none. If you find more than 1 inch of water, you should arrange for its immediate removal, notify the product supplier, and conduct further tests to ensure that the tank is not leaking.



## Step 5—Calculate Monthly Changes In Inventory

At the end of each month, follow the directions below to see if the difference between "stick" and "book" inventory indicates a possible leak.



W Add all of the month's "GALLONS PUMPED" numbers and write this total at the bottom of the column in the box labeled "TOTAL GALLONS PUMPED."

X Add all the month's "DAILY OVER OR SHORT" numbers: pay careful attention to positive and negative numbers to get an accurate total. For example, adding +4 and +3 and -2 should equal +5. Enter the total at the bottom of the column in the box labeled "TOTAL GALLONS OVER OR SHORT."

Y Fill out the "LEAK CHECK" line at the bottom of the MONTHLY INVENTORY

RECORD as follows:

- Take the "TOTAL GALLONS PUMPED" number and drop the last two digits to get 1% (for example: 6594 becomes 65).
- Add 130 (for example:  $65 + 130 = 195$ ).

Enter the result of this calculation at the end of the "LEAK CHECK" line. This number is the maximum change in inventory allowed by federal regulations (1% of throughput plus 130 gallons).

- Z At the bottom of the MONTHLY INVENTORY RECORD, circle "YES" or "NO" to show whether your "TOTAL GALLONS OVER OR SHORT" number is **LARGER** than the "LEAK CHECK" number you identified in the previous item. Even if your "TOTAL GALLONS OVER OR SHORT" is a negative number, treat it as a positive number for the purpose of this comparison. For example, -74 would become +74.

If you circle "YES" for 2 months in a row, you must notify your regulatory agency as soon as possible (usually within 24 hours) that your tank may be leaking.

**NOTE: Keep your inventory control records on file for at least 1 year. Your state, however, may have different rules about when you have to report a leak or how long you must keep the inventory records. Be sure you know the rules that apply to you**

# SAMPLE

## MONTHLY INVENTORY RECORD

TANK IDENTIFICATION & TYPE OF FUEL: 4 MIDGRADE UNL

MONTH/YEAR: 9, 93

FACILITY NAME: LAST CHANCE #2

DATE OF WATER CHECK: 9/1 LEVEL OF WATER (INCHES): 0 **V**

	<b>O</b>	<b>P</b>	<b>Q</b>	<b>R</b>	<b>S</b>	<b>T</b>	<b>U</b>
DATE	START STICK INVENTORY (GALLONS)	GALLONS DELIVERED	GALLONS PUMPED	BOOK INVENTORY (GALLONS)	END STICK INVENTORY (INCHES) [ GALLONS]	DAILY OVER (+) OR SHORT (-) ("End" - "Book")	INITIALS
1	4047 (+)	—	(-) 333	(-) 3714	38 1/4 3690	-24	JD
2	3690 (+)	—	(-) 44	(-) 3646	38 3658	+12	JD
3	3658 (+)	—	(-) 329	(-) 3329	35 3/8 3323	-6	JD
4	3323 (+)	—	(-) 60	(-) 3263	35 3275	+12	JD
5	3275 (+)	—	(-) 145	(-) 3130	33 3/4 3117	-13	JD
6	3117 (+)	—	(-) 238	(-) 2879	31 1/8 2790	-89	JD
7	2790 (+)	6134	(-) 117	(-) 8807	80 8844	+37	JD
8	8844 (+)	—	(-) 127	(-) 8717	78 7/8 8732	+15	JD
9	8732 (+)	—	(-) 182	(-) 8550	77 1/2 8591	+41	JD
10	8591 (+)	—	(-) 205	(-) 8386	75 1/2 8379	-7	JD
11	8379 (+)	—	(-) 204	(-) 8175	73 5/8 8173	-2	JD
12	8173 (+)	—	(-) 166	(-) 8007	72 7991	-16	JD
13	7991 (+)	—	(-) 320	(-) 7671	69 3/4 7730	+59	JD
14	7730 (+)	—	(-) 307	(-) 7423	67 7402	-21	JD
15	7402 (+)	—	(-) 76	(-) 7326	66 1/2 7342	+16	JD
16	7342 (+)	—	(-) 224	(-) 7118	64 1/2 7050	-68	JD
17	7050 (+)	—	(-) 390	(-) 6660	61 6657	-3	JD
18	6657 (+)	—	(-) 296	(-) 6361	58 3/8 6354	-7	JD
19	6354 (+)	—	(-) 78	(-) 6276	58 1/8 6290	+14	JD
20	6290 (+)	—	(-) 424	(-) 5866	54 5/8 5869	+3	JD
21	5869 (+)	—	(-) 205	(-) 5664	53 1/8 5639	-25	JD
22	5639 (+)	4177	(-) 403	(-) 9413	86 1/2 9423	+10	JD
23	9423 (+)	—	(-) 87	(-) 9336	85 1/2 9343	+7	JD
24	9343 (+)	—	(-) 311	(-) 9032	82 9036	+4	JD
25	9036 (+)	—	(-) 239	(-) 8797	79 1/8 8757	-40	JD
26	8757 (+)	—	(-) 256	(-) 8501	76 3/8 8526	+25	JD
27	8526 (+)	—	(-) 264	(-) 8262	74 1/2 8270	+8	JD
28	8270 (+)	—	(-) 263	(-) 8007	72 7991	-16	JD
29	7991 (+)	—	(-) 185	(-) 7806	69 7811	+5	JD
30	7811 (+)	—	(-) 116	(-) 7695	68 7690	-5	JD
31	(+)	(-)	(-)	(-)			

**W** TOTAL GALLONS PUMPED > 6594 TOTAL GALLONS OVER OR SHORT > -74 **X**

DROP THE LAST 2 DIGITS from the PUMPED number and enter on the line below

**Y** LEAK CHECK: 65 + 130 = 195 gallons

Is "TOTAL GALLONS OVER OR SHORT" LARGER than "LEAK CHECK" result? YES **NO** (circle one) **Z**

If answer is "YES" for 2 MONTHS IN A ROW, notify regulatory agency as soon as possible.

KEEP THIS PIECE OF PAPER ON FILE FOR AT LEAST 1 YEAR

**>>>Copy and post this reminder where employees who measure tanks can see it!<<<**

## **GET GOOD INVENTORY CONTROL MEASUREMENTS!**

- **Measure each tank every operating day**
- **Use gauge sticks that are**
  - ✓ **marked to the    inch**
  - ✓ **not cut off or worn off at the "0" end**
  - ✓ **varnished and not warped**
- **Measure through the same drop tube each time**
- **Use good sticking practices**
  - ✓ **SLOWLY lower stick**
  - ✓ **GENTLY touch stick on tank bottom**
  - ✓ **QUICKLY pull stick out**
- **Measure just before each delivery**
- **Wait at least 5 minutes after delivery, then measure again**
- **Read and record totalizer meters carefully**
- **Check for water at least once a month using water-finding paste**



# STANDARD OPERATING PROCEDURE HAZARDOUS WASTE RECORDKEEPING

Procedure No. OS.ENV.00.G.07.28.06

Rev No. 0

Issue Date: 7/28/06

Supersedes Procedure/Bulletin No. 0

Page 1 of 4

I. Subject: **Hazardous Waste Recordkeeping and Manifest & LDR Tracking**

II. Purpose: This procedure is to provide instruction on how to properly monitor and track all hazardous waste manifest and land disposal restriction (LDR) forms for the transportation and disposal of hazardous and non-hazardous waste.

III. Responsibilities: **Office of Safety & Risk Management (OSRM):**

The OSRM is responsible for maintaining copies of all manifests and/or LDR forms for a minimum of 3 years or as required by law. Submitting an Exception Report to MDE within 30 days if a signed copy of a manifest has not been received from the disposal facility.

OSRM is also responsible for maintaining a computer based tracking system that tracks all copies of manifests and LDR's as well as paid waste invoices.

**Generators of Hazardous Waste, (Superintendents, Supervisors, Clerks, or designees):**

Are responsible for signing and forwarding all copies of hazardous and non-hazardous waste Manifests, LDR's, Work Orders, Invoices and Receipts to the OSRM immediately upon receipt.

IV. Definitions: **Facility (Disposal):** A facility at which hazardous waste is placed into or on any land, water, at which waste will remain after closure.

**Generator:** Any person, by site whose act or process produces an identified or listed hazardous waste.

Reviewed By:

(Signature)

(Date)

☐ Ronald Keele

☐ Bernadette Bridges

☐ Dennis Rafferty Sr.

Approved By:

Ronald Keele

(Print Name)

(Signature)

(Date)

Executive Director, OSRM

(Title)





# STANDARD OPERATING PROCEDURE HAZARDOUS WASTE RECORDKEEPING

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Page 2 of 4

**Land Disposal Restriction (LDR) Form:** A form prepared by the hazardous waste generator (or Haz Waste Contractor) that notifies the disposal facility that the waste is either banned from land disposal (e.g., burying or injecting the waste in the ground) or certifies that the waste already meets land disposal requirements.

**Manifest:** The document that accompanies the waste from the generator's facility to the disposal facility and serves as a record of all individuals who come into contact with the waste. The manifest contains information on the generator, the transporter, the disposal facility, and the waste.

**Transporter:** A person engaged in the off-site transportation of hazardous waste.

- V. Procedure: At the time of pickup by a certified hazardous waste contractor, the MTA representative will sign the Generator portion of the completed manifest and LDR as well as all necessary work orders, or receipts. The representative of the transporting contractor will sign their portion of the manifest. After making copies for their location, the generator will forward all original copies to the OSRM.

Upon receipt, the OSRM will enter the manifest number, and LDR into the computer tracking system indicating, quantity of waste, date of receipt and copies received. Also added are invoice numbers and billing amounts. Payment will not be authorized until all manifest copies (Generator, Transporter, Facility) and LDR are received.

In the event the facility manifest copy is not returned to the generator, (in this case the OSRM), within 30 days. The OSRM will submit an Exception Report immediately notify the Maryland Department of the Environment (MDE).

OSRM will maintain all manifests, LDR forms, and exception reports for a minimum of 3 years. However, since the manifest is an important document, completed manifests over 3 years old must not be discarded. After 3 years, the records must be archived indefinitely. (COMAR 26.13.03.06(A)(1))

Reviewed By:

(Signature)

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Approved By:

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Executive Director, OSRM

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## VI. Attachments and Forms:

## VII. Authority or Reference:

### Federal:

Resource Conservation and Recovery Act, 42 U.S.C. § 6921 *et seq.*  
Title 40, Code of Federal Regulations, Part 262, Subpart B - The Manifest.  
Title 40, Code of Federal Regulations, Part 273.19 – Tracking Universal Waste Shipments [Small Quantity Handlers]  
Title 40, Code of Federal Regulations, Part 273.39 – Tracking Universal Waste Shipments [Large Quantity Handlers]  
Title 40, Code of Federal Regulations, Part 268 – Land Disposal Restrictions.  
Title 49, Code of Federal Regulations, Part 172, Subpart H - Training.

### Maryland:

#### **Manifests:**

COMAR 26.13.02.05 – Special Requirements for Hazardous Waste Generated by Small Quantity Generators  
COMAR 26.13.02.06 – Requirements for Recyclable Materials.  
COMAR 26.10.02.07-1 – Requirements for Universal Waste.  
COMAR 26.13.03.04 – The Manifest  
COMAR 26.13.04 – Standards Applicable to Transporters of Hazardous Waste  
COMAR 26.13.05 – Standards Applicable to Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.

#### **Training:**

COMAR 26.13.03.05(E)(g) – Pre-transport Requirements: Accumulation Time.  
COMAR 26.13.05.02(G) – General Facility Standards: Personnel Training.

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# STANDARD OPERATING PROCEDURE HAZARDOUS WASTE RECORDKEEPING

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Page 4 of 4

VII. Distribution: Office of Operations: Bus Operations, Metro Rail Operations, Light Rail Operations, MARC Operations, Mobility Operations Quality Assurance. Office of Training and Development

Reviewed By:

(Signature)

(Date)



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Approved By:

Ronald Keele

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Executive Director, OSRM

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Procedure No. OS.ENV.01.G.08.04.06

# STANDARD OPERATING PROCEDURE HAZARDOUS MATERIALS/WASTE DETERMINATION, STORAGE & LABELING

Rev No. \_\_\_\_\_ Issue Date: 8/4/06 Supersedes Procedure/Bulletin No. \_\_\_\_\_ Page 1 of 10

- I. Subject: This procedure is to ensure that all MTA facilities properly characterize, accumulate, store, and label all hazardous materials and wastes that are used and generated at all facilities and field locations. Listed is an overview of COMAR / RCRA regulations.
- II. Purpose: Potentially hazardous materials must be evaluated to determine whether they are classified as hazardous or non-hazardous as defined in the environmental regulations. While wastes are generated, they shall be properly placed in closed containers located in an area at or near the point of generation known as a satellite accumulation area. After a waste container is filled, the waste must be transferred to the central hazardous waste location. Special storage requirements exist for each type of storage area and waste stream. Special labeling is required for wastes while they are accumulated and stored on-site prior to disposal. While this procedure primarily focuses on hazardous waste, these requirements also apply to the storage, labeling, inspections and handling of all hazardous materials used or domiciled at all MTA locations.
- III. Responsibilities:
- Office of Safety & Risk Management (OSRM):**
- Responsible for overall enforcement of this procedure.
  - Project management of hazardous waste contracts.
  - Recordkeeping of all hazardous waste manifests (SOP O.S.ENV.00.G.07.28.06)
- Generators of Hazardous Waste, (Superintendents, Supervisors, Employees or designees):**
- Responsible for weekly inspections and the proper labeling, (including accumulation start date), of waste containers.
  - Contact hazardous waste contractor for removal
  - Recordkeeping of weekly inspection and copies of hazardous waste manifests.
  - Forwarding of all pertinent documentation to OSRM.

Reviewed By:

(Signature)

(Date)



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8/4/06



Jernadette Bridges

8/4/06



Dennis Rafferty Sr.

8/4/06

Approved By:

Ronald Keele

(Print Name)

(Signature)

August 4, 2004

(Date)

Executive Director OSRM

(Title)



Procedure No. OS.ENV.01.G.08.04.06

# STANDARD OPERATING PROCEDURE HAZARDOUS MATERIALS/WASTE DETERMINATION, STORAGE & LABELING

Rev No. \_\_\_\_\_

Issue Date: 8/4/06

Supersedes Procedure/Bulletin No. \_\_\_\_\_

Page 2 of 10

## IV. Definitions:

**Generator:** Any person, by site whose act or process produces an identified or listed hazardous waste.

**Hazardous Materials/Substances:** Any material by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful, is likely to cause death or injury.

**Hazardous Waste:** Any substance or industrial byproduct, that is potentially damaging to the environment and harmful to humans and other living organisms. Wastes are defined as hazardous if they meet the following criteria:

a. Characitized Waste:

- Ignitability
- Corrosivity
- Reactivity
- Toxicity

b. Listed Waste:

A waste listed as hazardous because they are known to be harmful to human health and the environment.

**Universal Waste:** Any of the following:

- Batteries as described in COMAR 26.13.10.07
- Pesticides as described in COMAR 26.13.10.08
- Thermostats, Lamps, PCB-containing lamp ballasts, each as described in COMAR 26.13.10.09

Reviewed By:

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(Date)



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8/4/06



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Procedure No. OS.ENV.01.G.08.04.06

# STANDARD OPERATING PROCEDURE HAZARDOUS MATERIALS/WASTE DETERMINATION, STORAGE & LABELING

Rev No. \_\_\_\_\_

Issue Date: 8/4/06

Supersedes Procedure/Bulletin No. \_\_\_\_\_

Page 3 of 10V. Procedure:**Hazardous Waste Accumulation and Storage Areas:**

Two types of hazardous waste storage areas exist at MTA facilities: satellite accumulation areas and central storage areas. A satellite accumulation area is located at or near the point where hazardous waste is initially generated, and the area must be under the control of the person generating the waste. For example, a drum or 5 gallon container that is easily accessible and is located near an area where waste is being generated is considered a satellite accumulation area. A drum that is located in a locked storage room away from the point of generation is not considered a satellite accumulation area. More than one satellite accumulation area can exist at a facility if hazardous waste is generated at more than one location in the facility; however, each location where hazardous waste is generated should have only one satellite accumulation area.

A central storage area is where wastes that are generated at various locations in a facility are stored prior to being shipped off-site for disposal. More stringent requirements concerning location, secondary containment, signs, and aisle space must be followed for this type of storage area.

**Accumulation Requirements:**

At the MTA we may accumulate less than 55 gallons of hazardous waste or less than 1 quart of acute hazardous waste at each satellite accumulation area for any length of time. The drum must be labeled with the words "Hazardous Waste" and with other words that identify the contents of the drum. The container must also remain closed except when waste is added or removed.

When 55 gallons of hazardous waste or 1 quart of acute hazardous waste has been generated at the satellite accumulation area, the drum must be marked with the date on which those limits are reached. This date is known as the accumulation start date. The generator must immediately (within the current shift) do one of the following:

- Ship the waste off-site for disposal, or
- Move the waste to the facility's central storage area.

If the waste is moved to the facility's Hazardous Waste Shed, then the facility is allowed to store the waste in the shed for up to 90 days from the time the waste first enters the Hazardous Waste Shed (the first day of accumulation). If the hazardous waste drum is initially filled at the Hazardous Waste Shed, not at a satellite accumulation area, then the accumulation start date is the date on which hazardous

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August 4, 2004

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# STANDARD OPERATING PROCEDURE HAZARDOUS MATERIALS/WASTE DETERMINATION, STORAGE & LABELING

Procedure No. OS.ENV.01.G.08.04.06

Rev No. \_\_\_\_\_

Issue Date: 8/4/06

Supersedes Procedure/Bulletin No. \_\_\_\_\_

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- I. Subject: This procedure is to ensure that all MTA facilities properly characterize, accumulate, store, and label all hazardous materials and wastes that are used and generated at all facilities and field locations. Listed is an overview of COMAR / RCRA regulations.
- II. Purpose: Potentially hazardous materials must be evaluated to determine whether they are classified as hazardous or non-hazardous as defined in the environmental regulations. While wastes are generated, they shall be properly placed in closed containers located in an area at or near the point of generation known as a satellite accumulation area. After a waste container is filled, the waste must be transferred to the central hazardous waste location. Special storage requirements exist for each type of storage area and waste stream. Special labeling is required for wastes while they are accumulated and stored on-site prior to disposal. While this procedure primarily focuses on hazardous waste, these requirements also apply to the storage, labeling, inspections and handling of all hazardous materials used or domiciled at all MTA locations.
- III. Responsibilities:
- Office of Safety & Risk Management (OSRM):**
- o Responsible for overall enforcement of this procedure.
  - o Project management of hazardous waste contracts.
  - o Recordkeeping of all hazardous waste manifests (SOP O.S.ENV.00.G.07.28.06)
- Generators of Hazardous Waste, (Superintendents, Supervisors, Employees or designees):**
- o Responsible for weekly inspections and the proper labeling, (including accumulation start date), of waste containers.
  - o Contact hazardous waste contractor for removal
  - o Recordkeeping of weekly inspection and copies of hazardous waste manifests.
  - o Forwarding of all pertinent documentation to OSRM.

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Rev No. \_\_\_\_\_

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## IV. Definitions:

**Generator:** Any person, by site whose act or process produces an identified or listed hazardous waste.

**Hazardous Materials/Substances:** Any material by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful, is likely to cause death or injury.

**Hazardous Waste:** Any substance or industrial byproduct, that is potentially damaging to the environment and harmful to humans and other living organisms. Wastes are defined as hazardous if they meet the following criteria:

a. Characitized Waste:

- Ignitability
- Corrosivity
- Reactivity
- Toxicity

b. Listed Waste:

A waste listed as hazardous because they are known to be harmful to human health and the environment.

**Universal Waste:** Any of the following:

- Batteries as described in COMAR 26.13.10.07
- Pesticides as described in COMAR 26.13.10.08
- Thermostats, Lamps, PCB-containing lamp ballasts, each as described in COMAR 26.13.10.09

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V. Procedure:

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waste is first placed in the drum, and the 90-day period begins from that date. During the 90-day storage period, special labeling, storage, and inspection requirements must be followed. *It is imperative that the 90-day storage period not be exceeded.*

## Performing Weekly Inspections:

A designee and alternate at each generating facility is responsible for ensuring that all weekly hazardous waste central storage area inspections are conducted as required. Inspections shall include conditions at the satellite accumulation areas, which should be inspected during the course of the normal working day. A "Hazardous Waste Storage Inspection Log", or equivalent, is to be used by the person responsible for undertaking the weekly inspections. The inspection form is designed to document the status of the hazardous waste storage area and to inspect the containers of waste stored within the storage facility. The Log also documents the status of the emergency response equipment in conjunction with the signage and documents that are present. At the top of the inspection form are lines to document the name of the inspector, the date and time of the inspection, and the number of containers and types of waste stored at the facility. At the bottom of the inspection form, lines are included for elaboration of "no" answers or comments from the inspection. All inspections forms are to be retained for a period of (3) three years.

If problems are encountered during a weekly inspection, the Inspector must ensure that corrective action is initiated immediately. Common problems and corrective actions include the following:

- If a container of hazardous waste is not in good condition or if it begins to leak, the waste must be transferred to a container in good condition, or the container must be placed in an overpack container
- If drums are placed against a wall, the information must face outward, not toward the wall.
- If a label or marking begins to fade and becomes illegible, the label or marking must be replaced or rewritten.
- Missing or damaged "Hazardous Waste", "Danger", and "No Smoking" signs must be replaced.
- Liquid present in the secondary containment must be removed. If rainwater in the secondary containment is not visibly contaminated, the rainwater may be discharged to the storm sewer. If visibly contaminated rainwater or liquid from leaking containers is present in the secondary containment, then the liquid must be transferred to a drum, and the liquid must be managed as a hazardous waste. If a listed hazardous waste was released, then the liquid may

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have to be managed as a hazardous waste. If a characteristic hazardous waste was released, then the liquid must be tested to determine whether the liquid also exhibits a hazardous characteristic. Therefore, it is imperative that no leaking containers or contaminated rainwater be present in the storage area.

- If the source of a waste or contents of a container is not known, MTA personnel shall not open the container or drum. Instead, they should attempt to positively identify the source or contents by inspecting markings or labeling. If no information is available, MTA personnel should contact their waste disposal contractor to perform sampling and characterization of the unknown waste and/or container's contents. The drum or container should be labeled **"Unknown Contents – Pending Analysis"** and dated until positively identified.

## Container Labeling:

Containers must be labeled or marked with the words "Hazardous Waste" and with other words that identify the contents of the container (e.g., "Lead-Contaminated Soil"). Also required, the hazard associated with the contents must be indicated on the container (e.g., "Irritant"). This information can be found on the MSDS. This information must be placed on the drum, or container before waste is placed in the drum or container, and the information must remain on the container while it is being filled. (COMAR 26.13.03.05)

## Additional markings required for universal waste:

- Containers holding batteries must be clearly marked with one of the following phrases: "Universal Waste - Batteries", or "Waste Batteries", or "Used Batteries".
- Containers holding recalled waste pesticides must be clearly marked with one of the following phrases: "Universal Waste - Pesticide(s)" or "Waste Pesticide(s)".
- Each universal waste thermostat or the container holding such thermostats must be clearly marked with one of the following phrases: "Universal Waste - Mercury Thermostat(s)", or "Waste Mercury Thermostat(s)", or "Used Mercury Thermostat(s)".
- Containers holding waste lamps (containing mercury and lead) must be clearly marked with one of the following phrases: "Universal Waste Mercury-Containing Lamps", "Waste Mercury-Containing Lamps", or "Used Mercury-Containing Lamps".

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## Incompatibility of Waste:

Incompatible wastes must be properly stored on-site. Containers must be made of, or lined with, materials that will not react with, and are compatible with, the hazardous waste to be stored. (COMAR 26.13.05.09(B))

## Container Closure:

Containers must always be tightly closed during storage, except when adding or removing waste. The most common examples of containers that are not closed are open-head drums with missing lids, and closed-head drums with funnels left in the bungholes. Lids and rings must be tightly fastened, and funnels must be removed and bungs replaced. The general rule to follow is that if a drum is accidentally tipped over and no leakage from the drum occurs, then the drum is tightly closed. (COMAR 26.13.05.09(D))

## Floor Drains:

Hazardous waste storage areas must not be situated near a floor drain where there is a possibility that a spill or leak could enter the drain.

## Aisle Space:

Storage areas must have adequate aisle space around the containers to facilitate inspection and emergency response (if required). A minimum of 2.5 feet of aisle space is recommended. If drums are stacked, pallets should be used between each tier. Do not stack drums more than 2 tiers high. (COMAR 26.13.05.09(I))

## Emergency Response Equipment:

Portable fire extinguishers, fire control equipment (e.g., foam, inert gas, dry chemicals), spill control equipment, and decontamination equipment must be staged near the Hazardous Waste Shed. (COMAR 26.13.05.03(C)(3))

## Secondary Containment Requirements at Hazardous Materials or Waste Storage Locations:

- Container storage areas must be equipped with an underlying base that is free of cracks or gaps and is able to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed. (COMAR 26.13.05.09(H)(1)(a))
- The base must be sloped or the containment area must be designed to drain and remove

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liquid resulting from leaks, spills, or precipitation, unless the containers are elevated (e.g., on wooden pallets or spill pallets) or otherwise protected from contact with accumulated liquids. (COMAR 26.13.05.09(H)(1)(b))

- The secondary containment area must be able to contain 10% of the volume of all containers or the volume of the largest container whichever is greater. Containers that do not contain free liquids need not be considered in this determination. (COMAR 26.13.05.09(H)(1)(c))
- Run-on precipitation into the secondary containment area must be prevented, unless the collection system has sufficient excess capacity to contain any run-on that might enter the containment area. (COMAR 26.13.05.09(H)(2))

## Empty Drum (Container) Disposal:

A container that has held any waste, is empty if:

- All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, such as pouring, pumping, and aspirating.
- Not more than (1) one inch of residue remain on the bottom of the container;
- Not more than 3 percent by weight of the total capacity of the container remains in the container if the container is less than or equal to 110 gallons in size; or 0.3 percent by weight of the total capacity of the container remains in the container if the container is greater than 110 gallons in size.

Empty drums should not be disposed of as regular trash or scrap metal (see exemptions). Empty drums should be disposed of either with a hazardous waste disposal company that can responsibly dispose of or recycle the drum, or directly with a drum reconditioner or recycler. Before shipping an empty drum off-site for reconditioning/recycling, several guidelines must be followed:

- If empty drums are stored outside, the drums should be covered to prevent rainwater from entering the drum. Empty drums should not be stored on their sides or upside down.
- Empty drums must always have the bungs, lids, rings, and bolts fastened if these parts are available. Having the drum closed prevents vapors from escaping and residual material from leaking or splashing during storage and handling. If empty drums are stored outside, the

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drums should be covered to prevent rainwater from entering the drum.

- When empty drums are shipped off-site for recycling or reconditioning, all original markings and labels that describe the previous contents of the drum must remain on the drum to notify people of the potential hazards of remaining residues. Remove or cross out markings or labels with the MTA name from the drum, so that MTA is not falsely accused should the drum be improperly handled by others prior to recycling.

Drums can be properly disposed of as scrap metal and regular trash if the following procedures are followed:

- A drum containing a non-hazardous waste must be rinsed in order for the drum to be clean. The drums must be triple-rinsed over an oil water separator.
- Once cleaned, the drum can be crushed and properly disposed of as scrap or trash.

**VI. Attachments and Forms:** Hazardous Waste Inspection Form  
Hazardous Waste Label  
Safety Bulletin #001-01-21-05 (Transferring of Chemicals & Labeling of Containers)

**VII. Authority or Reference:** Included in text  
OSHA 29 CFR 1910.101 – Gas Cylinder Storage & Handling  
OSHA 29 CFR 1910.106 – Flammable & Combustible Liquids Storage & Handling

**VII. Distribution:** Office of Operations: Bus Operations, Metro Rail Operations, Light Rail Operations, MARC Operations, Mobility Operations Quality Assurance. Office of Training and Development

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# MARYLAND TRANSIT ADMINISTRATION

## HAZARDOUS MATERIALS/WASTE INSPECTION FORM

Inspected By:	Date:	Location:
Number of containers and waste in storage:		
<b>Hazardous Material / Waste Containers</b>		
	Yes	No
1. Are all containers closed properly?		
2. Are the stored substances compatible with each other or separated adequately?		
3. Are all containers free from corrosion/ rust/ damage?		
4. Are all container heads free from bulging?		
5. Are all containers free of leaks?		
6. Is the Accumulation Start date documented on the containers?		
7. Is "Hazardous Waste" warning marked on the containers?		
8. Are all contents marked on all the containers?		
9. Are all Hazardous Waste containers stored less than 90 days?		
<b>Storage Area</b>		
	Yes	No
10. Are all hazardous substances stored in secondary containment?		
11. Does secondary containment meet RCRA / OSHA requirements?		
12. Is the area free of severe structural deterioration?		
13. Is the area free of liquids / water?		
14. Is area secure?		
15. Is adequate aisle space maintained? Minimum 2.5'		
<b>Storage Area</b>		
	Yes	No
16. Is Contingency Plan available?		
17. Are emergency numbers posted?		
18. Is an adequately supplied spill response kit at the storage area?		
19. Are proper signs posted (including "No Smoking" and "Hazardous Waste Storage")?		
20. Is fire extinguisher nearby?		

COMMENTS:



# HAZARDOUS WASTE

**FEDERAL LAWS PROHIBIT IMPROPER DISPOSAL**

**IF FOUND, CONTACT THE NEAREST POLICE OR  
PUBLIC SAFETY AUTHORITY OR THE  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

## GENERATOR INFORMATION:

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

EPA ID NO. \_\_\_\_\_ EPA WASTE NO. \_\_\_\_\_

ACCUMULATION START DATE \_\_\_\_\_ MANIFEST DOCUMENT NO. \_\_\_\_\_

[ \_\_\_\_\_ ]  
[ \_\_\_\_\_ ]  
[ \_\_\_\_\_ ]

D.O.T. PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX

## HANDLE WITH CARE!



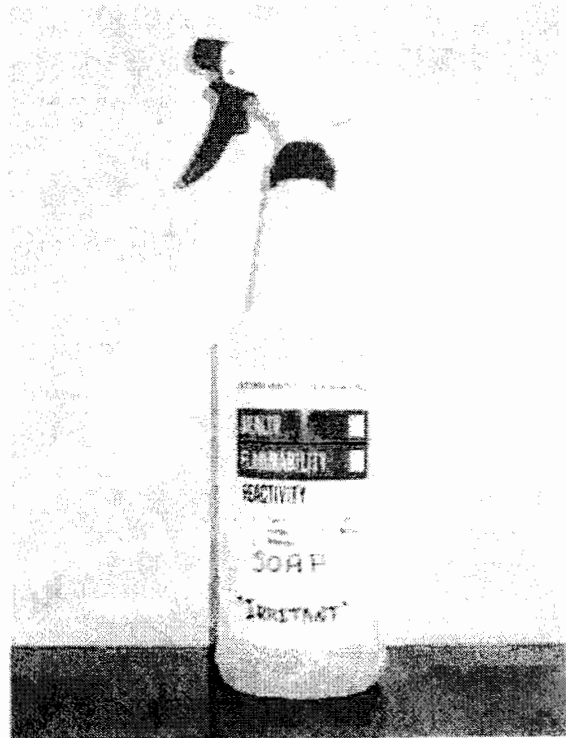
MTA-OFFICE OF SAFETY AND RISK  
MANAGEMENT

SAFETY BULLETIN No. 001 – 01-21-05

TITLE:

TRANSFER OF CHEMICALS AND LABELING OF  
CONTAINERS

All containers of hazardous chemicals must be labeled, tagged, or marked with the identity of the material and appropriate hazard warnings. A description of the principal hazards involved in using the product must be included on the label. In this case, the "SOAP" is an IRRITANT" to the skin, eyes and to the gastrointestinal system if swallowed. Other words that may be used to describe the principal hazard in using other products may include "Vapor Harmful", "Flammable", "Corrosive", "Absorbed Through the Skin" and such. This information is found on the Material Safety Data Sheet (MSDS) for that chemical.



See your Supervisor for labels anytime you transfer a chemical into a smaller container. The labels are available in the storeroom, Part No. B68-2151 or through Grainer Inc. #3TL67.

"HAVE A SAFE DAY"